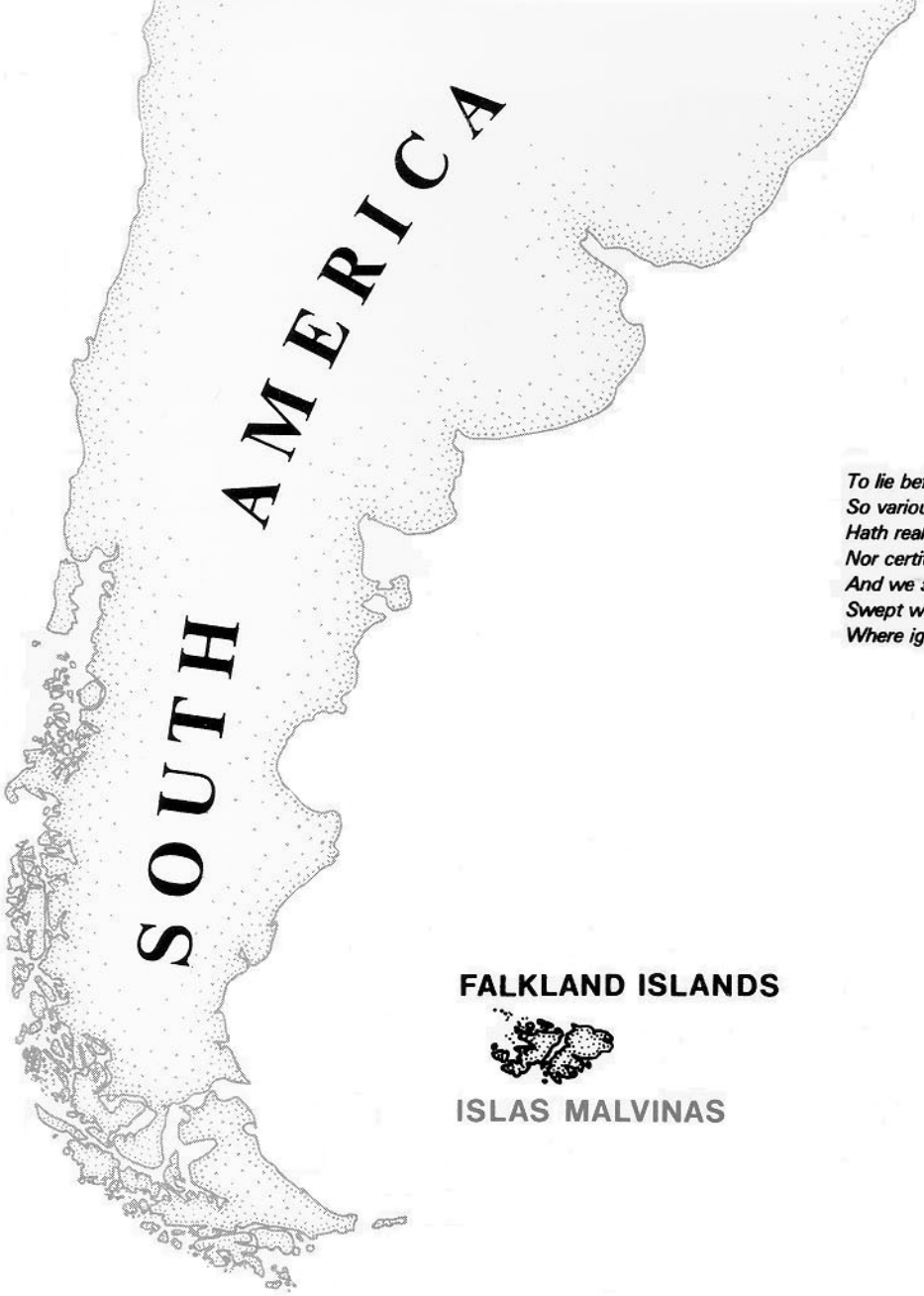

...for the world, which seems
To lie before us like a land of dreams,
So various, so beautiful, so new,
Hath really neither joy, nor love nor light,
Nor certitude, nor peace, nor help for pain;
And we are here as on a darkling plain
Swept with confused alarms of struggle and flight,
Where ignorant armies clash by night.

Matthew Arnold

FALKLAND ISLANDS

ISLAS MALVINAS

SOUTH GEORGIA ISLANDS

ISLAS GEORGIAS DEL SUR

SCOTIA SEA

DRAKE PASSAGE

SOUTH ORKNEY ISLANDS

ARA ISLAS ORCADAS

ARA ISLAS ORCADAS CRUISE 1678 SEDIMENT DESCRIPTIONS

By F. Amrisar Kaharoeddin
R. Shelton Graves
James A. Bergen
Margaret R. Eggers
David M. Harwood
Cynthia L. Humphreys
Elaine H. Goldstein
Steven C. Jones
David K. Watkins

Edited by Dennis S. Cassidy

ANTARCTIC RESEARCH FACILITY
DEPARTMENT OF GEOLOGY
FLORIDA STATE UNIVERSITY
TALLAHASSEE, FLORIDA 32306

SEDIMENTOLOGY RESEARCH LABORATORY
CONTRIBUTION No. 50
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INTRODUCTION

The purpose of this volume, the eleventh in a series of similar publications (Goodell, 1964, 1965, 1968; Frakes, 1971, 1973; Cassidy et al., 1977a, 1977b; Kaharoeddin, 1978; Kaharoeddin et al., 1979, 1980), is to continue a presentation to the research community of sediment core descriptions and attendant data of cored and otherwise obtained sediments retrieved in waters of the Southern Ocean aboard the research vessel, ARA ISLAS ORCADAS (formerly, USNS ELTANIN), as a part of the circumpolar survey begun by ELTANIN in 1962 (see issue of Antarctic Journal of the United States, Vol. 8, No. 3, 1973).

The data presented herein are concerned with the results of coring activities aboard cruise 1678 of ISLAS ORCADAS, the fifth and final marine geology coring cruise of this vessel sponsored under the terms of a joint Republic of Argentina-United States of America agreement (now terminated), and have been organized in format similar to that of the previous volumes of ISLAS ORCADAS core descriptions (Cassidy et al., 1977b; Kaharoeddin, 1978; Kaharoeddin et al., 1979, 1980). These data include 1) a brief summary of the coring objectives of the cruise, together with a discussion of core recovery; 2) a table and map of station location data for materials retrieved; 3) an explanation of the laboratory procedures and descriptive criteria used in the description of the sediments, and 5) lithologic descriptions of the piston and trigger cores, and the piston and trigger core bagged samples. Also included in this report, as an appendix, is the compilation of a bibliography of titles incorporating the results of research and other activities performed upon sediments collected aboard ISLAS ORCADAS.

A total of 510.11 meters of liner-encased core sediment, recovered by 113 cores (68 piston cores; 45 trigger cores), are described in this volume (piston cores = 496.72 m; trigger cores = 13.39 m).

Also described are:

1. Bagged samples representing the sole recovery of sediment by 4 coring attempts (piston core 72; trigger cores 30, 105, and 109);

2. A small amount of bagged sediment taken from the bottom of piston core 120, the latter having been returned, unopened, to the Republic of Argentina;

3. Bagged sediments recovered from the core cutter and/or core catcher of the piston cores (in previous volumes, the descriptions of these bagged sediments were included in a single listing; in this volume, they appear with the descriptions of the piston cores with which they are associated) and,

4. Bagged sediments recovered from the core cutter and/or catcher of the trigger cores. The descriptions of these appear with the descriptions of the trigger cores with which they are associated.

Piston core sediments described herein are 36.91% disturbed due to flow-in with respect to total core length, as compared to 5.17%, 30.85%, 3.16% and 11.08% for cruises 1578, 1277, 1176 and 0775, respectively.

Experience gained in the describing of more than 1,590 meters of piston, trigger, and Phleger core sediments recovered aboard the first four coring cruises of ISLAS ORCADAS has contributed significantly toward eliminating any but the most minor of modifications to established procedures - - procedures which have been applied to these, the cruise 1678 cores. (For a summary of core recovery aboard ARA ISLAS ORCADAS, see Cassidy, 1980).

ACKNOWLEDGEMENTS

The cores described within this volume were collected under the supervision of Sherwood W. Wise, Jr., whose participation as chief scientist aboard cruise 1678 was aided by the assistance of graduate students Paul F. Ciesielski, Steven C. Jones, and Jan F. Smolko, all of the Florida State University. Funding in support of the shipboard collection program was provided by grants DPP 77-19360 and DPP 78-07183 from the National Science Foundation's Division of Polar Programs to Dr. Wise. This volume, and the four that have preceded it, are a tribute to the original suggestion by Wise that the format of the ISLAS ORCADAS core description volumes be modeled after those appearing in the series, Initial Reports of the Deep Sea Drilling Project.

Of the sixteen persons who have authored the five volumes of ISLAS ORCADAS core descriptions, thirteen of them were graduate students (of which seven were students of Dr. Wise), and one was an undergraduate student, the latter, Margaret R. Eggers, being the only undergraduate student to have served as a member of the "core-crew" responsible for core-describing. Participation by ten of the graduate student authors aboard a combined total of 17 cruises of the research vessels, ARA ISLAS ORCADAS, USNS ELTANIN, GLOMAR CHALLENGER, and RESEARCHER, has played an important role in providing the depth of experience necessary to the completion of this project.

John G. Hattner and Anthony Socci served for a limited time during laboratory procedures involving core-describing. Their help is appreciated. Susan E. Hall and Stephen Knuttel provided assistance in proofreading. In between classes, Linda S. Brandfass did a magnificent job of typing the bulk of the manuscript, begun by Louise M. Cox.

As usual, Rosemarie K. Raymond made the drafting look as if it were easy, which it isn't. A special word of appreciation is extended to her.

Meridith L. Jones of the Smithsonian Institution's Department of Invertebrate Zoology (Division of Worms) is gratefully acknowledged for his providing an identification for the macrofossil found at the top of trigger core 1678-64.

Project funding in support of the curatorial program has been provided by the taxpayer, according to the terms of a Division of Polar Programs, National Science Foundation contract, DPP 75-19723, to George W. DeVore (Florida State University).

ISLAS ORCADAS CRUISE 1678

Cruise Objectives

Cruise 1678 of ARA ISLAS ORCADAS was the fifth and final multidisciplinary cruise of this vessel from which cores were received by the Antarctic Research Facility. Figure 1 shows the area covered by the coring operation. A detailed summary of the cruise and its accomplishments has been documented by Wise et al. (1978). For the convenience of those using this volume of core descriptions, the text of their article has been reproduced herein, as follows (references cited are to be found in the references section of this volume):

> "ARA ISLAS ORCADAS departed Buenos Aires 5 April 1978 on a 54-day, 6,781-nautical-mile cruise to the southwest Atlantic sector of the southern ocean for:
>
> (1) marine geology: coring survey of older (pre-Pliocene) strata on the Falkland (Malvinas) Plateau, Georgia Basin, and the Islas Orcadas Rise to elucidate the older geologic history of the region; coring east and northeast of the Scotia Arc to trace Antarctic Deep Water flow.
>
> (2) physical oceanography: hydrographic surveys east and northeast of the Scotia Arc to trace Antarctic Deep Water flow and the configuration of the Polar Front; hydrographic transect across the Argentine Basin.
>
> (3) marine geophysics: investigation of the northeast Georgia Rise tectonics, the pre-Eocene spreading regime and fracture zone trends east of the Scotia Arc on the South Atlantic tectonic plate, and a tie-in profile with cruise 15 over the young crust southeast of the Scotia Arc.
>
> A total of 120 ship stations were attempted, yielding 69 complete piston cores and 73 successful conductivity-temperature-depth (CTD) stations. All major objectives were met, at least in part, despite four moderately severe storms (winds over 40 knots).
>
> Placid winds during the first week of the cruise allowed for an uninterrupted 17-station CTD transect across the Argentine Basin to the northern margin of the Maurice Ewing Bank of the Falkland Plateau where an intensive coring survey of older sediments was conducted in rough weather during the second week.
>
> A sonobuoy was recorded in the West Georgia Basin to determine basement velocity while in transit to the northeastern Georgia Rise where intensive coring was resumed briefly before proceeding to the Scotia Arc to begin the important transect to the Mid-Atlantic Ridge. We offset along the ridge to begin a line of stations down to 61°S.20°W. Core or CTD stations were taken every degree of latitude or less with geophysical tracking in between. Extra time gained along the track was invested in two geophysical excursions for magnetics and in a core and CTD traverse from the southernmost turn point to the Scotia Trench to study antarctic deep water flow.
>
> A storm broke just as the rosette came on board at the last CTD station of the section. For the next 3 days the ship was driven north, but fortunately in the general direction of our last major objectives in the area of the Islas Orcadas Rise. A day of intensive coring on the Rise did yield older sediments, the first ever recovered from this aseismic feature. From there we ran the final traverse of CTD and core stations across the Polar Front into the Argentine Basin, with a good geophysics crossing of the shelf break.
>
> Marine geology. A primary coring goal was to survey older (pre-Pliocene) sediment outcrops indicated on seismic profiles across shallow (1,000 to 1,700 fathoms) aseismic features south of the Falkland Fracture Zone. As each core was raised, the chief scientist dated a smear slide of the cutter head sample and used this information to select the next core site. Of 34 cores attempted on the Maurice Ewing Bank, 18 penetrated the thin glacial marine cover to reach pre-Pliocene sediment ranging from Paleocene to Miocene in age. Rapid progress was made; as many as eight cores were raised in 24 hours. Of interest were Oligocene siliceous oozes sampled on the northwest corner of the Ewing Bank and Eocene calcareous/siliceous

oozes encountered for the first time in this region along the northeast corner. These cores greatly expand the coverage of older sediment previously obtained in this area (Ciesielski and Wise, 1977).

Three cores attempted along the Northeast Georgia Rise failed to penetrate older sediment, although a good Pliocene record was obtained. Our disappointment was compensated for by the success of the first cores ever taken on the Islas Orcadas Rise where an extensive cover of Miocene to Eocene/Oligocene carbonate-siliceous ooze was sampled at two widely separated localities. These initial cores show that the Islas Orcadas Rise harbors a long ranging sedimentary record of the geologic history of this area which can be obtained by piston coring.

The two long tracks between the Scotia Trench and the Mid-Atlantic Ridge obtained long (12 to 18 meter) cores ranging in age from early Pliocene to Quaternary. Ash layers were sampled east of the Scotia volcanic chain. The stations from the Islas Orcadas Rise into the Argentine Basin also produced long (18-meter) cores of siliceous muds and oozes.

Physical oceanography. Seventy-three CTD and oxygen stations and 1,700 water samples were taken during the cruise. Four major hydrographic-chemical sections cross the Antarctic Circumpolar Current and the Polar Front. An additional section with closely spaced stations was obtained between 61°S.20°W. and the South Sandwich Islands. One hundred sixty expendable bathythermographs and numerous sea-surface temperature, salinity, and nutrient observations provide additional information between the stations.

The first hydrographic section across the Argentine Basin to the Ewing Bank crosses several major hydrographic features including the Brazil/Malvinas (Falkland) Confluence, a meander or a cold-core eddy of Malvinas origin, and the Polar Front. Evidence of lateral mixing, unusually intense temperature, salinity and dissolved oxygen fine-structure, between the circumpolar deep waters and those of northern origin being transported towards the south by the Brazil current was found along the entire section. Four closely spaced stations were taken immediately north of the Falkland Escarpment to look for a westward extension of Antarctic Bottom Waters with potential temperatures less than -0.25°C.

The next major hydrography came after coring on the Ewing Bank. Eighteen full depth CTD and oxygen stations were occupied between the South Sandwich Islands and the midocean ridge. The polar front zone, the region of transition from antarctic to subantarctic waters, was rather broad occupying nearly 4 degrees of latitude. Farther to the east, a north-south section starting at the midocean ridge and ending in the Weddell Sea was completed. The southernmost stations of the section had been occupied during the previous cruise. Along the section two prominent water mass transitions were evident: to the north near 50°S. the Polar Front, to the south near 60°S. the eastward extension of the Weddell/Scotia Sea confluence. Before starting the final hydrographic section from the Islas Orcadas Rise north into the Argentine Basin a short section from 61°S.20°W. to the South Sandwich Islands was occupied. The final section, which provided the fourth crossing of the Polar Front, ended in the central Argentine Basin.

Marine geophysics. Continuous bathymetric (3.5 and 12 kilohertz), gravimetric, magnetic and single channel seismic data were gathered. The Graf-Askania gravimeter was corrected for cross-coupling errors using an L-DGO designed analog computer. The seismic sound source was an array of three 40-cubic-inch Bolt air guns fired simultaneously at 2,000 pounds per square inch pressure.

The Islas Orcadas Rise is an early Cenozoic manifestation of an 800-kilometer westward jump in the spreading center south of the Agulhas/Falkland Fracture Zone (LaBrecque and Hayes, *1979*). Cruise 16 was planned to determine the southern extent of the Islas Orcadas Rise and to aid in deciphering the seafloor spreading regime south of the Islas Orcadas Rise. Data were gathered to further delineate the age and structure of the Argentine Basin.

> An important discovery was the attainment of an excellent magnetic profile across the M series (Mesozoic) magnetic anomaly pattern in the Georgia Basin tentatively identified by Rabinowitz and LaBrecque (1977). This is the first positive identification of the Mesozoic sequence south of the Agulhas/Falkland Fracture Zone and strongly supports the hypothesis that the Ewing Bank and the Mozambique Ridge were conjugate margins during the early rifting of Africa and South America. Also a 4,000-meter guyot was discovered along the southern extension of the Islas Orcadas Rise. The guyot was named "Maria Lucia" in honor of Captain Tambussi's wife.
>
> Cruise 16 was a particular pleasure due to the warm hospitality given the 18-man scientific staff by the ship's officers and crew. We especially thank Captain Carlos Tambussi and the Segundo, Albertani, for their kindness and considerations, and Lt. Horatio Ezcurra for the strong technical support by the Oceanographic Section cheerfully and tirelessly rendered despite the heavy load of station time and the often difficult weather conditions. Geophysics work was funded by the National Science Foundation grant DPP 77-15586."

No bottom photographs were taken on this cruise.

Core Recovery

A total of 69 complete piston cores were recovered aboard ARA ISLAS ORCADAS cruise 1678 by means of a modified Ewing piston corer using plastic liners. ("Complete" is defined herein to mean that a sample removed from these cores can be assigned an absolute interval value with respect to its distance down-core from the top, or 0 cm, end of the core). One additional piston core attempt, although unsuccessful in recovering a liner-encased core, did manage to obtain sediment lodged in the core cutter and core catcher, as well as a small amount of material extracted from the core liner (piston core 72). This sediment was placed in plastic bags. Descriptions of bagged sediments are included in this volume in the interest of publicizing their availability for sampling.

Forty-five complete trigger cores were also recovered aboard the cruise. Trigger core sediments, including bagged sediments recovered by three other coring attempts, are described according to the same criteria used for the description of the piston cores.

All latitudes, longitudes and water depths given for the trigger cores correspond to those of the piston cores with which they are associated. Also, piston and trigger core numbers correspond to ship station numbers.

Table 1 lists core numbers and latitude, longitude, length, and water depth of the piston and trigger cores. With respect to these data, it should be noted that assignments for latitude, longitude, and water depth of the piston and trigger cores are not based on position data from PDR (Precision Depth Recorder) "hit" times of the coring apparatus, but instead, on the position of the vessel at the time of beginning of the descent of the coring apparatus (as determined from the computer output of the ship's Daily Data Sheets). This is done under the assumption that the initial descent of the coring rig was probably more directly over the point of bottom contact of the corer than would be the ship at "hit" time. During the descent, the ship may drift considerably; however, rapid "paying out" of the cable during drift time allows for a more or less vertical descent of the coring apparatus beneath the original ship position, with the trajectory of the cable being that of a long, sweeping arc from ship to point of bottom contact. Therefore, the fathometer reading at "hit" time indicates water depth under the ship and not necessarily at the coring point.

Water depths, recorded in fathoms and converted to meters by a x 1.8288 conversion factor, are uncorrected depths; i.e., they have not been corrected by use of Matthews' corrections tables (Matthews, 1939).

Core Shipment and Handling

The cores were shipped by air freight from Buenos Aires to Miami, Florida. From Miami, they were transported by truck to the Antarctic Research Facility in Tallahassee where they were received on July 10, 1978. They were not refrigerated during shipment.

Cores are cut using an adjustable, track-operated, overhead, radial power saw (Cassidy and DeVore, 1973). A core is manually split after the saw cuts through only the thickness of the plastic core liner, on opposite sides. Following description and sampling, the two half-sections of core are heat-sealed in polyethylene "sleeving" to prevent dessication and then returned to refrigerated storage (2°C).

TABLE 1

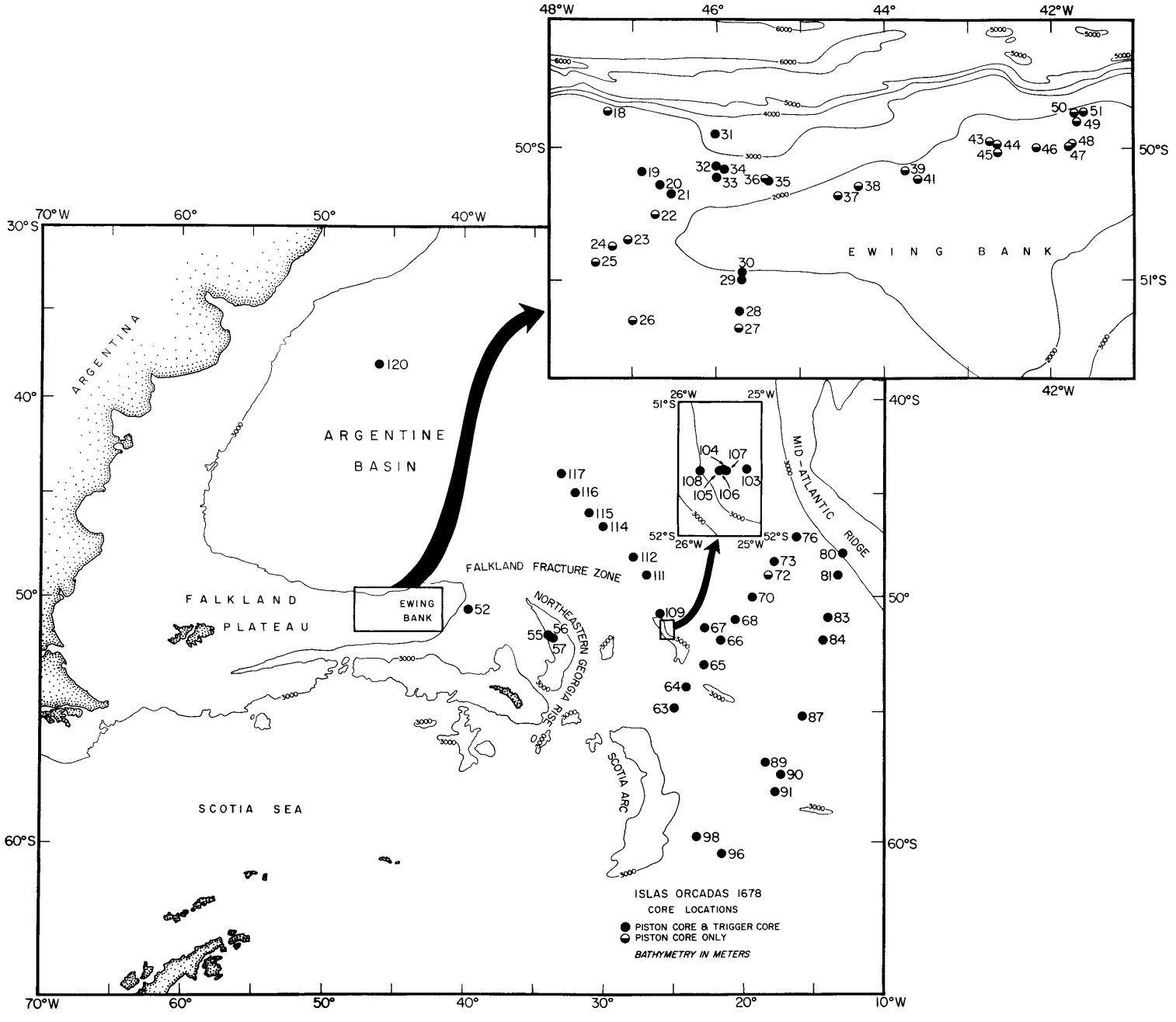
STATION LOCATIONS, CORRESPONDING WATER DEPTHS, AND CORE RECOVERY FOR ARA ISLAS ORCADAS CRUISE 1678

Core Number	Latitude (S)	Longitude (W)	Water Depth(m)	Core Length (cm): PC	TC
18	49°43.4'	47°17.3'	2345	178	NR
19	50°11.1'	46°53.0'	2725	447	31
20	50°17.0'	46°40.1'	2498	144	7
21	50°21.2'	46°31.9'	2262	530	41
22	50°31.1'	46°43.6'	2420	563	NR
23	50°42.0'	47°03.3'	2520	89	NR
24	50°45.1'	47°14.2'	2505	20	NR
25	50°52.6'	47°26.5'	2573	527	NR
26	51°18.6'	46°59.2'	2703	230	NR
27	51°22.4'	45°43.8'	2264	377	NR
28	51°14.2'	45°43.4'	2557	196**	10
29	51°00.3'	45°41.9'	2182	50	29
30	50°56.6'	45°41.6'	2012	372	BAG
31	49°53.7'	46°00.6'	3091	570	52
32	50°08.4'	46°00.1'	2771	105	31
33	50°13.9'	45°59.9'	2465	509	41
34	50°09.9'	45°54.0'	2769	279	21
35	50°15.0'	45°22.5'	2429	520	36
36	50°13.4'	45°25.8'	2622	492	NR
37	50°21.8'	44°32.6'	1580	415	NR
38	50°18.1'	44°18.3'	1595	309	NR
39	50°10.6'	43°44.8'	1840	500	NR
41	50°14.6'	43°35.8'	1655	210	NR
43	49°57.3'	42°43.6'	1706	188	NR
44	49°58.7'	42°38.4'	1677	257	NR
45	50°02.5'	42°38.3'	1624	74	NR
46	50°00.2'	42°10.7'	1693	27	NR
47	49°59.4'	41°47.0'	1529	281	NR
48	49°58.3'	41°44.8'	1598	532	NR
49	49°47.5'	41°41.4'	1708	99	NR
50	49°43.2'	41°43.0'	1726	27	NR
51	49°43.0'	41°36.2'	1792	27	NR
52	50°37.4'	39°43.0'	3936	1762	7
55	51°45.4'	34°01.5'	2533	280	9
56	51°50.2'	33°54.4'	2374	777	13
57	51°53.2'	33°48.4'	2185	284	23
63	54°52.4'	25°00.3'	4389	838	35
64	54°00.5'	24°11.7'	4515	659	16
65	53°05.1'	22°57.3'	4331	1107	29
66	51°59.6'	21°42.1'	4422	1086	32
67	51°26.4'	22°53.4'	4588	162	33
68	51°04.3'	20°38.8'	4422	1741	27
70	49°59.8'	19°25.5'	4214	1105	24
72	49°01.5'	18°23.1'	4042	BAG	NR
73	48°24.6'	17°55.1'	3877	1030	27
76	47°10.1'	16°17.6'	3312	1148	25
80	47°57.0'	13°01.4'	3102	1167	30
81	48°59.9'	13°20.2'	3464	1207	27
83	50°56.8'	14°03.4'	3742	1718	16
84	51°57.5'	14°25.2'	3952	1049	24
87	55°11.9'	15°50.6'	3738	1761	27
89	57°03.6'	18°32.4'	4285	1717	34
90	57°30.8'	17°22.7'	4545	1715	30
91	58°09.9'	17°48.5'	3954	1735	53
96	60°27.9'	21°37.1'	4177	845	32
98	59°50.3'	23°25.9'	4631	1146	38
103	51°30.5'	25°11.9'	3028	1036	21
104	51°29.5'	25°27.7'	2999	662	19
105	51°31.2'	25°30.4'	3122	220	BAG
106	51°31.3'	25°28.0'	3091	47	18
107	51°31.3'	25°25.9'	2986	401	17
108	51°31.6'	25°43.5'	2772	444	13
109	50°46.3'	26°04.1'	2999	1089	BAG
111	48°59.9'	26°57.6'	4331	1797	52
112	48°09.3'	27°58.7'	4374	1761	53
114	46°40.9'	30°07.4'	4716	1766	51
115	46°00.6'	31°05.8'	5047	1780	53
116	44°59.9'	32°06.5'	5044	1700	55
117	44°01.2'	33°05.3'	5201	1786	28
120*	38°10.0'	46°03.6'	5024	∿143**	49

PC = Piston Core
TC = Trigger Core
NR = No Recovery
BAG = Bag Sample

*Piston core 120 returned to Argentina, unopened.

**See notes accompanying the piston core descriptions.


48°W
46°
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ARGENTINA
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FALKLAND FRACTURE ZONE
FALKLAND PLATEAU
EWING BANK
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55
56
57
NORTHEASTERN GEORGIA RISE
SCOTIA SEA
SCOTIA ARC
26°W
25°W
51°S
52°S
104
107
108
103
105
106
MID-ATLANTIC RIDGE
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98
96
30°
20°
10°W
ISLAS ORCADAS 1678
CORE LOCATIONS
PISTON CORE & TRIGGER CORE
PISTON CORE ONLY
BATHYMETRY IN METERS

FIGURE 1

CORE DESCRIBING PROCEDURES

General Information

Procedures used for describing the cores listed in this volume are similar to those used for the describing of cores from ARA ISLAS ORCADAS cruises 0775 (Cassidy et al., 1977), 1176 (Kaharoeddin, 1978), 1277 (Kaharoeddin et al., 1979), and 1578 (Kaharoeddin et al., 1980). A few minor modifications have been necessary, particularly to the core preparation procedure and the methods of smear slide analysis, and these are discussed in this chapter. As in the past, estimations of the compositional percentages of fine grain sediments are based on smear slide analyses; however, for sediments with abundant coarse fractions, the smear slide analyses must be supplemented by frequent megascopic examination of the coarse particles, separated by wet sieving, or observed in situ.

For obvious reasons, cores should be described immediately after being opened. However, the cruise 1678 cores were received while the describing of the cruise 1578 cores was in progress. The immediate needs of several investigators requiring samples from the cruise 1678 cores demanded that these cores be opened and sampled long before it was possible to describe them. Thus, of the 68 piston cores described in this volume, 26 of them had been opened two years prior to their being described; the remainder (42) were described within six to ten months after opening. Moisture loss was minimized by the careful handling, sealing, and storing of the cores following sampling. Prior to the describing of the extensively sampled cores, a thin film of exposed sediment was scraped off their surfaces so that the original sediment color could be determined.

The description of each core consists of three types of information:

1. The primary information (latitude, longitude, water depth, core length, the statement of bottom topography);

2. The main lithologic description (megascopic descriptions and smear slide analyses), and

3. Information concerning core conditions that are not inherent to the lithologic character of the sediments.

Most of the primary information is obtained from the deck-log and the ship's daily data sheets (ship-log), except core length, which is measured by the core describers. Core conditions not inherent to the lithologic character of the sediments are noted in the description and include mention of such situations as the loss of a core section and an estimate of its length (e.g., piston core 1678-28), or of factors which seriously affect the stratigraphic integrity of the sediment (e.g., piston core 1678-23). Conditions which seriously affect both the core description and the value of the sediment for sampling are mentioned at the beginning of the description; those which are not critical to the description may appear at the end of the description. Occasionally, smear slides are biased toward the fine fractions, and this information is noted within the description of the unit.

Each piston core description is accompanied by a graphic log illustrating the main lithologies, boundaries, inclusions, sedimentary structures, and degrees of disturbances of the sedimentary units. (The same criteria and format used for describing the piston cores are used for describing the trigger cores, except that the graphic log is omitted from the trigger core description.) The positions of the core section breaks are also indicated in the log in order to inform the investigator as to where samples should not be taken, since the cutting of cores into sections produces sediment disturbance. Not all information appearing in the written portion of the lithologic description is illustrated in the log. An attempt was made to place the lithologic log and the lithologic description of each sedimentary unit on the same page in order to facilitate the use of this volume, although in some cases, juxtaposition was not always possible. If necessary, the scale of the log was changed at appropriate depths.

Some core sediments are bagged. Bagged sediments can be grouped into three categories, as follows:

1. Bagged sediment representing the total recovery of sediment by the coring attempt. (Piston core 1678-72; trigger cores 1678-30, -105, and -109.) The weights of these bagged sediments appear in the description as an indication of the amount of sediment available for sampling.

2. Bagged sediments recovered by the core cutter and/or core catcher (C/C). These can be from either a piston or a trigger core. If the lithology of a C/C sediment differs from that of the overlying unit, it is described in detail. The weights of these bagged samples are also given in the description.

3. Bagged sediment originating from somewhere within the sediment column, and which normally would be encased within the core liner. Most bagged sediments in this category are from the tops or bottoms of core sections, and often result from the accidental spilling of sediment from the liner end, either during handling or cutting of the liners into shorter sections, or from difficult extrusion of the core liner from the core barrel. It is important that the length of a bagged sediment be taken into account in the determination of the true core length. Thus, an estimate of the length of a bagged amount of sediment is derived by molding this sediment into a cylinder of the same diameter as that of the core liner, and then measuring the length of the bagged sediment column to the nearest centimeter. In the core description, the position of a bagged interval is denoted by an asterisk appearing in the deformation column of the graphic log (if a piston core), and by a note to that effect at the end of the core description.

Core Preparation Procedure

Initial preparation of the cores for description begins with cutting of the core liners. Following cutting, the sediment is manually split into two halves by the pulling of a stainless steel wire between the liner halves. The surfaces of each half are cleaned of plastic debris, and then scraped perpendicular to the core axis with a stainless steel spatula in order to expose the internal structures of the sediment. By studying these structures, disturbance of the sediment due to flow-in usually can be distinguished from disturbances caused by moderate washing, although sediments disturbed in either manner can exhibit vertical striations. Since samples may be taken from a core prior to its description, flow-in and other disturbances are recorded immediately after the core is opened.

Both core halves are tagged every 20 cm, with the estimated length of existing bagged sediments being taken into account. The error in a depth tag's position below a bagged portion of the core sediment is about 10% of the estimated length of the bagged sediment. For example, a bagged sample estimated to be 4 cm in length, and originating from just below 450 cm, would create a maximum error of $\pm$ 4 mm in the position of all depth tags below 450 cm.

Megascopic Examination and Description

The elements of description of each unit are presented in the following order: the upper and lower boundaries of the unit in centimeters, sediment name and color code, observable distribution of volcanic ash and manganese and/or ferrous micronodules and staining, internal structures within the unit (zone, layer, lamina, stringer, cast), inclusions (sedimentary clasts, pebbles, lapilli and breccia, manganese nodules), bioturbation, operational disturbances due to the coring operation and transportation, and the nature of the bottom contact of the unit. The description is followed by smear slide analyses as representative as possible of the unit.

Lithologic units were defined on the basis of compositional, textural, and other sedimentological characteristics, and have been named according to the classification system described in the next chapter. Almost all units can be classified with this system.

In a few instances, a unit exhibiting a distinct primary structure may be found to consist of more than one lithology. In these cases, a structural term is incorporated in the name of the unit. Examples of this are: "Intermixed, muddy, diatomaceous ooze, light olive gray (5Y 5/2), and glauconitic, radiolarian-diatomaceous sand. . ." (piston core 1678-19, 257-447 cm); "Interbedded layers of diatomaceous ooze, olive gray (5Y 4/1), containing abundant volcanic ash, and ash-bearing, diatomaceous ooze. . ." (piston core 1678-96, 400-474 cm); "Interbedded layers (up to 5 cm) of fine to coarse sand, diatomaceous ooze, and sandy, diatomaceous ooze. . ." (piston core 1678-105, 0-64 cm).

Estimated values of constituent abundances obtained from smear slide analyses, wet sieving, and magascopic examination were used in this classification. If a smear slide analysis was suspected of bias toward either the coarse or the fine fraction, a careful re-examination of the core was necessary.

Two of more consecutive units may have the same sediment name, but are described as separate units. Separations are made on the basis of sedimentological dissimilarities such as increased or decreased abundance of a major component, or an abundance of fine inclusions or laminae (e.g., piston core 1678-98). Sedimentological changes often coincide with sharp changes in color. Contacts between units are not always sharp; often, they are gradational. Determinations of the positions of these contacts are based upon a close examination of the core and a careful evaluation of the results of various tests performed on the sediments.

The size class (figure 4) of a sand or pebble unit is always mentioned in the description, but any mention of particle sorting is optional (at the discretion of the describer). Because of the significance of pebbles in glaciomarine sediments, their median diameters in pebbly sand or pebbly mud are also mentioned in the description. All grain sizes of particles and inclusions (pebbles, sedimentary clasts, lapilli, manganese nodules, etc.) are given in millimeters.

The following are routine tests and examinations conducted in the study of core units:

1. A test for the presence of carbonate is conducted using dilute (1:20) hydrochloric acid. The reaction on the working slide is observed under a binocular microscope.

2. Hydroxylamine hydrochloride crystals are used to test for the presence of micronodules, or for manganese oxides and/or ferrous oxides occurring as staining material. (This test cannot be used to detect the presence of ferrous or manganese oxides in carbonate-rich sediments, since the carbonate also reacts with the crystals.) Observation of this reaction also makes use of the binocular microscope and a working slide.

3. The coarse fraction, if abundant, is separated by wet sieving (62 μm sieve) and studied under the binocular microscope.

4. The determination of the position of a gradational contact sometimes requires the preparation of several working slides of sediment obtained from close intervals in the vicinity of the contact. (Working slides are not reported in the core descriptions.)

5. A thorough megascopic examination is made of the core in order to determine its sedimentary structures, and the presence of dispersed inclusions or other components such as micronodules, pebbles, sedimentary clasts, or volcaniclastics.

A unit may exhibit several colors, and color changes within a unit are described as being gradational or sharp (abrupt). The color of the sediment is determined by the visual comparison of fresh sediment with the Geological Society of America color chart (Goddard et al., 1970). If the color of a sediment cannot be matched exactly with the color chart, the most closely matching color is used. Mottling refers to irregular spots of differing color within the sediment, and the color of mottling may be included in the description. Mottling usually occurs in diatomaceous ooze.

Any variation in the abundance of a major component in a unit, observable either megascopically or through smear slide analyses, is given in the description. Minor constituents which are scattered within a unit are generally not well-represented on smear slides. Therefore, these constituents (micro-manganese nodules, lapilli, volcanic ash, etc.) are identified on working slides, using proper chemical tests where applicable. Their abundances are determined after thorough examination of the core, and described semi-quantitatively as sparsely scattered, common, or abundant. Manganese and ferrous oxides that occur as staining materials can be either in the form of small patches, or spread uniformly within a certain interval. These stainings are described by three qualitative terms: slightly, moderately, or highly stained.

In describing the internal structures within a sedimentary unit, the stratigraphic position of each structure is noted, and, when applicable, the composition and the color are also described. In this volume, each structure is defined as follows: Layers have a thickness of between 1 to 10 cm, separated from the main unit by a discrete change in lithology and distinct planes of contact. Laminae are similar to layers, but have a thickness of less than 1 cm. Stringers are laminae which are discontinuous and often irregular in form.

Related to the internal structure are zones, and these are defined as small intervals (less than 20 cm) in which a notable change in the abundance of some components or inclusions in the unit can be detected, either through megascopic examination or in the smear slide analysis. In the description of a unit, the following sequence is used: zones, layers, laminae, and stringers.

Inclusions within a unit are described in the following order:

1. Sedimentary clasts are usually described in detail including size, composition, color, compactness, and position in the core.

2. Manganese nodules are described as to their size and position.

3. Volcaniclastics are classified according to the textural classification of Wentworth and Williams (1932). Their position in the core is given, and sometimes, the rock type (pumice, scoriae) is also mentioned.

4. Pebbles are usually described only as to their size, roundness, and position. Occasionally, their rock type is also given. Coatings, encrustations, and cementations by manganese or ferrous oxides are common on clastics and volcaniclastics; these are mentioned when present.

Macrofossils are rarely encountered within the cores. Of the 460 piston, trigger, and Phleger cores recovered aboard the five coring cruises of ISLAS ORCADAS, only three cores are known to have recovered macrofossils, one of which is described in this volume. (A polychaete tube was found at the top of trigger core 1678-64. The two other cores in which macrofossils were found are piston cores 1578-28 and 1578-30.)

Bioturbated sediments are described in terms of slightly, moderately, or highly bioturbated. The qualifiers can be approximated as follows:

slightly:	less than 5% bioturbations
moderately:	between 5% to 30% bioturbations
highly:	30% or more bioturbations

Operational disturbances are disturbances in the sediment usually occurring during the coring operation, transportation, and, occasionally, during the splitting of the core, resulting in total or partial loss of the primary sedimentary structures and the stratigraphic integrity of the sediment. The degree of the disturbance is based on the value of the sediment for sampling, and is described in terms of slightly, moderately, or highly disturbed. Slightly disturbed sediments still retain most of their primary sedimentary structures, particularly along the central axis of the core. Moderately disturbed sediments have lost almost half of their original structures, and must be sampled carefully in order to be stratigraphically meaningful. Highly disturbed sediments have lost most or all of their primary structures; it is not recommended that these be sampled for stratigraphic study because of the mixing of sediment components. Highly mixed sediment that has randomly entered the core by suction during the coring operation is described as flow-in, and is usually characterized by vertical striations which can be traced from the base of the core.

Water entrapped in the liner, and which was not removed aboard ship, can wash the sediment along one side of the liner during transport. This disturbance is described as slightly or moderately washed along the side, and still can be sampled carefully for stratigraphic work. The term, highly washed along the side, is not used because the sediment is almost always highly disturbed. An uncommon disturbance occurs when the overlying sediment is dragged along the side of the liner. The sediment described in this manner also can be sampled carefully for stratigraphic work. For each unit, the most severe disturbance is listed first.

Smear Slide Analysis

The method used in this volume is similar to that used in the describing of sediments recovered aboard previous cruises of ARA ISLAS ORCADAS. The abundance of various components of sediment on the smear slides was estimated using petrographic microscopes capable of magnification up to 2000X and with options of using transmitted light, polarized light, phase contrast, and Nomarski differential interference contrast. For each smear slide, the following constituents were quantitatively estimated:

1. Minerals: quartz, feldspar, mica, heavy minerals, volcanic glass, glauconite, pyrite, micromanganese nodules, barite, and zeolites.

2. Biogenic constituents: foraminifera, calcareous nannofossils, unspecified carbonate, diatoms, radiolarians, sponge spicules, silicoflagellates, ebridians, and dinoflagellates.

Quartz and feldspar are differentiated on the basis of the crystal habit and twinning of feldspar. Keratophyric particles generally can be distinguished, but, due to their mode of formation and often weak birefringence, they are grouped with volcanic glass. Included in micromanganese nodules are ferrous and manganese oxides which occur as staining materials on biogenic particles. Clay minerals, which have refractive indices very close to that of Canada balsam, are detected and estimated by means of phase contrast microscopy.

The percentage composition chart for rock and sediments, as prepared by Shvetsov (Terry and Chilingar, 1955), was used to estimate the abundance of the constituents of the sediments on the smear slides. In all estimates, void spaces were taken into account. On smear slides with abundant coarse fragments, these void spaces often comprise as much as 50% of the total area of the slide. In these cases, estimated abundance percentages based solely on comparison to the chart of Shvetsov are usually of diminished accuracy. In order to improve the quality of the core descriptions, a more accurate method has been devised for the analysis of smear slides with abundant coarse fragments and proportionately high void spaces. This method involves the determination of the ratios of the abundance to one another of various smear slide constituents, from which percentage abundances can be calculated. The steps of this ratio method are outlined, as follows:

1. Estimate the ratio of the total coarse fraction* (consisting usually of quartz, feldspar, heavy minerals, glauconite, radiolarians, and foraminifera) to the total fine fraction (consisting usually of clay, diatoms, silicoflagellates, and nannofossils).

2. List separately, and in order of abundance from the most abundant to the least abundant, the components of the coarse and fine fractions.

3. Using the comparative chart of Shvetsov, and taking into account the void spaces, estimate the percentage abundance of the most abundant component of the coarse fraction (usually quartz).

4. Repeat step 3 for the fine fraction.

5. For the coarse fraction, estimate the ratio of the second most abundant component to the most abundant; next, the ratio of the third most abundant component to the most abundant, etc.

6. Repeat step 5 for the fine fraction.

7. Convert each of the ratios obtained in steps 5 and 6 to a percentage of the estimated percent abundance (from steps 3 and 4) of the most abundant component of the coarse and fine fractions, respectively. For example, if the most abundant component of the coarse fraction was quartz, and was estimated in step 3 to be 45%, and the ratio of the second most abundant component (say, glauconite) to quartz was estimated to be 1:3, then the percentage abundance of glauconite would be 15% (1/3 of 45%).

8. In theory, the total of the percentages of the most abundant components of both size fractions (from steps 3 and 4), when added to the total of the percentages of the less abundant components of each size fraction, should equal 100%, and, ideally, the ratio of the total of all abundance percentages of the coarse fraction constituents (from steps 3 and 7) to the total of all abundance percentages of the fine fraction constituents (from steps 4 and 7) should be the same as the coarse-to-fine fraction ratio estimated in step 1. (The ratio obtained by step 1 serves merely as a reference for comparison with the ratio of the total of the percentages of the coarse fraction constituents to the total of those of the fine fraction, since the ratio obtained in step 1 is usually fairly accurate.) In practice, however, the total of the percentages rarely equals 100% (although usually close), nor do the two ratios agree exactly. Although several variables contribute to the degree of "error" involved (such as the experience of the observer), the degree of variance is primarily a function of the nature of the method itself, involving, as it does, an element of subjectivity in the estimations.

9. The final step, therefore, is to adjust, if necessary, one or more of the percentages of specific components so that the total of all percentages equals 100%. These minor adjustments are not made at random, but instead are made with reference to 1) the megascopic examination, using a binocular microscope, of coarse fraction particles separated by wet sieving; 2) the analysis of other smear slides from the lithologic unit, and 3) the observation of macroscopically visible features and particle distributions within the unit.

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*The coarse fraction is defined as comprising all particles between the lower limit of medium silt (0.016 mm) and the upper limit of coarse sand (2 mm; see figure 4). Particles less than 0.016 mm are considered the fine fraction.

The presence of certain components on the smear slide may require minor variations to the ratio determinations method of step 7. For example, if heavy minerals constitute one of the less abundant components of the coarse fraction, and quartz is the most abundant component of this size fraction, then it will be necessary to determine the ratio of the abundance of the heavy minerals to the abundance of some other coarse fraction component, such as glauconite. Quartz particles are viewed between crossed nicols, whereas heavy minerals are commonly observed with plane-polarized light. Viewed by plane-polarized light, the non-opaque heavy minerals exhibit high relief, but quartz exhibits very low relief and often cannot be distinguished from the Canada balsam. Thus, it becomes necessary to determine the abundance ratio of the heavy minerals to the abundance of some other coarse fraction component exhibiting easily and readily definable boundaries under plane-polarized light.

Smear slides dominated entirely, or almost entirely, by coarse particles may not require application of the ratio method, regardless of the presence of many void spaces.

On smear slides devoid of a coarse fraction, the percentage abundances of the two most abundant components of the fine fraction (usually either diatoms and clay, or diatoms and nannofossils) are commonly determined by use of a simple ratio method. This use of the ratio method is made necessary by the common occurrence of the components in layers.

Almost all smear slides are analyzed by two or more observers. This procedure reduces both individual bias and the probability of misidentification, and increases the reliability of estimates. Also improved is the likelihood that a scarce component will be reported. If a component can be found regularly in most traverses on a smear slide, but its abundance is less than 1% according to the percentage composition chart of Shvetsov, then the abundance of that component is recorded as <1%. If a component is rarely found on a smear slide, it is recorded as <<1%.

SEDIMENT CLASSIFICATION

The sediment classification scheme used in this volume is similar to that of the previous volume (Kaharoeddin et al., 1980), in that the principles follow those of the JOIDES classification. The important characteristics of this classification are: 1) sediment names are those in common usage; 2) the classification is strictly descriptive, and 3) the classes and groups are based solely on abundance estimates of the constituents as determined by smear slide analyses, wet-sieving, and/or megascopic examination.

The triangular classification of clastic sediments (figure 3) that was devised for use in describing of the cores recovered aboard ARA ISLAS ORCADAS cruise 1578 (Kaharoeddin et al., 1980) is also used in this volume, since experience indicates that it is applicable not only to glaciomarine sediments, but to other types of clastic marine sediments as well.

The three major groups of sediment are (figure 2):

1. Pelagic sediments consisting of pelagic clay, siliceous ooze, calcareous ooze, and a mixture of siliceous and calcareous ooze;

2. Transitional sediments consisting of mixtures of biogenic and clastic sediments, and

3. Terrigenous and volcanic detrital sediments.

General Rules

A. Sediments are named after their major constituent.

B. Lesser constituents which exceed 15% (except for glauconite which must exceed 10%) are used as qualifiers which precede the sediment name.

C. A maximum of two qualifiers may be used, the second being the most abundant.

Specific Rules

A. Pelagic Clay

This type of sediment accumulates at a very slow rate and generally has a brown hue. Authigenic components are common (equal to or greater than 5% in estimated abundance) in this sediment; however, they might be distributed in such a manner that they are not found on the smear slide or are present only in a small quantity. Usually, a careful examination of the core, aided by the smear slide analysis, is necessary to determine whether or not a sediment is a pelagic clay. The primary components of pelagic clay are clay minerals and silt-size quartz particles, and it may contain less than 30% biogenic components. A qualifier cannot be added to pelagic clay; hence, pelagic clay containing 25% diatoms is not called diatomaceous, pelagic clay.

B. Pelagic Biogenic Sediments

Included in this group are sediments containing at least 30% biogenic skeletons, but containing less than 30% silt and clay. They are named according to their principal fossil types: diatomaceous ooze, radiolarian ooze, siliceous ooze, foraminiferal ooze, nannofossil ooze, or calcareous ooze. A second (lesser) biogenic component may be used as a qualifier if present more than 15%. The following rules are applicable for naming the pelagic biogenic sediments:

1. If both the principal and lesser fossil types are similar in their chemical composition (i.e., calcareous or siliceous), and if the ratio of the lesser to the principal fossil type exceeds 0.75, the sediment is called siliceous ooze or calcareous ooze, depending on its chemical composition.

Examples:

Quartz	9%	Quartz	5%
Feldspar	1%	Feldspar	<1%
Volcanic glass	1%	Clay	3%
Glauconite	7%	Foraminifera	40%
Diatoms	45%	Calcareous nannos	38%
Radiolarians	35%	Diatoms	13%
Sponge spicules	2%	Radiolarians	1%
$\frac{\text{Radiolarians}}{\text{Diatoms}} = .78$		$\frac{\text{Calcareous nannos}}{\text{Foraminifera}} = .95$	

:hence, siliceous ooze

:hence, calcareous ooze

Quartz	9%
Feldspar	1%
Clay	10%
Volcanic glass	2%
Glauconite	3%
Diatoms	50%
Radiolarians	25%
Silicoflagellates	<1%

$$\frac{\text{Radiolarians}}{\text{Diatoms}} = 0.5$$

:hence, radiolarian, diatomaceous ooze

2. Calcareous sediments which have unspecified carbonate more than one-third of the total carbonate are also called calcareous ooze.

3. If the principal and lesser fossil types differ in chemical composition, and if the ratio of the lesser to the principal fossil type exceeds 0.75, then both components are used in the sediment name joined by a hyphen.

Example:

Quartz	8%
Feldspar	<1%
Clay	7%
Volcanic glass	15%
Carbonate unspecified	7%
Foraminifera	30%
Diatoms	28%
Radiolarians	5%

$$\frac{\text{Diatoms}}{\text{Foraminifera}} = .93$$

:hence, diatomaceous-foraminiferal ooze

C. Transitional Biogenic Sediments

Included in this group are sediments containing at least 30% silt and clay. Two subdivisions are recognized: the transitional siliceous sediments having at least 15% diatoms but less than 30% calcareous skeletons, and transitional calcareous sediments having at least 30% calcareous skeletons. The following rules apply for naming the sediments in this group:

1. A transitional siliceous sediment is called muddy, diatomaceous ooze if diatoms are more abundant than total silt and clay; otherwise, it is called diatomaceous mud.

2. The transitional calcareous sediments are named according to their principal fossil types: marly, foraminiferal ooze or marly, nannofossil ooze. If the ratio of the lesser to the principal fossil type exceeds 0.75, the sediment is called marly, calcareous ooze.

D. Terrigenous Detrital Sediments

Sediments in this group are classified according to their textures as defined by the standard size classes of sediment according to Friedman and Sanders, 1978 (figure 4). The following rules apply for sediments which are primarily composed of mixtures of sand, silt, and clay (figure 3):

1. The sediments are named after their major clastic component (end-member) if that component is greater than or equal to 70%.

2. Sediments containing a mixture of silt and clay greater than or equal to 70% are called mud.

3. Sediments containing between 30% and 50% sand are named: sandy silt if the silt content is between 50% and 70%; sandy clay if the clay content is between 50% and 70%, or sandy mud if the mud content is less than 70%.

4. Sediments containing between 50% and 70% sand and between 30% and 50% mud are called muddy sand.

5. Sediments containing a minor component between 15% and 30% (e.g., diatoms or pebbles) should have a qualifier (e.g., diatomaceous or pebbly). In this case, the percentages of sand, silt, and clay are recomputed to 100% before applying the four rules above.

   Example:

Quartz	58%
Feldspar	2%
Mica	1%
Heavy minerals	1%
Clay	10%
Volcanic glass	4%
Glauconite	1%
Diatoms	20%
Radiolarians	2%
Sponge spicules	1%

   In this example, clastics (quartz, feldspar, mica, heavy minerals, clay, volcanic glass, glauconite) total 77%. If sand-size particles total 45% and silt and clay are 32%, then the recomputed values of

   $$\text{sand} = 0.45 \times \frac{100}{77} = 58\%, \text{ and}$$

   $$\text{mud} = 0.32 \times \frac{100}{77} = 42\%.$$

   Hence, the sediment is called diatomaceous, muddy sand.

6. The terms, siliceous sand and siliceous mud, are not used. In cases where the siliceous components of a sand or mud are great enough to justify the use of a modifer, the appropriate terms, diatomaceous and radiolarian, are used. These terms are separated by a hyphen if the ratio of the two biogenic siliceous components is equal to or exceeds 0.75. If their ratio is less than 0.75, the modifying terms are separated by a comma. Note, however, that the hyphenated term is represented in the lithologic log of the core description by the symbol for siliceous ooze.

E. Volcanic Detrital Sediments

This sediment group is classified according to the textural and compositional classification of Wentworth and Williams (1932).

1. The nomenclature and the size limits used are as follows:

volcanic breccia:	greater than 32 mm
volcanic lapilli:	less than 32 mm, greater than 4 mm
volcanic ash:	less than 4 mm

2. The volcanic detrital sediments can have biogenic qualifiers by adding the term "bearing" to the qualifier; example: diatom-bearing, volcanic ash. The same term is also added if the volcanic detrital is used as a qualifier to another group of sediments; example: ash-bearing, diatomaceous ooze.

Remarks on the Classification of Terrigenous Detrital Sediments

As was stated at the beginning of this chapter, experience indicates that the triangular classification (figure 3) proposed by Kaharoeddin et al. (1980) is one which is practical, and which can be used for the classification of detrital sediments in general. The absence of certain classes of sediment, such as silty sand or clayey sand, does not hinder the use of this classification. It is, in fact, an advantage, especially when the classification is made on the basis of a smear slide analysis. Further information concerning the use of this triangular classification appears on page 19 of Kaharoeddin et al. (1980).

Most elaborate classifications are best applied with complete size analyses (Pettijohn, 1957). For this volume of core descriptions, percentages of the end-members (sand, silt, and clay) were obtained through smear slide analyses, occasionally verified by wet-sieving This method is consistent with the method of studying pelagic, pelagic-biogenic, or biogenic-transitional sediment.

Classifying sediments solely on the basis of a smear slide analysis occasionally results in an incorrect classification. Sediments deposited in the abyssal plain are largely clay size, predominantly less than 1 μm. Generally, they have a brownish color and are classified as pelagic clay. However, fine silt-size quartz and feldspar can also be well-represented in pelagic clay, such as in the sediments of the Cape Verde Basin of the Atlantic. The origin of quartz particles in this basin is the Sahara Desert (Rex and Goldberg, 1958). In the Antarctic seas, fine silt-size quartz particles are common (10%-20%) in pelagic clay (Lisitzin, 1972, p. 124). The color of the sediment is not necessarily brown, because oxidation did not always prevail. Thus, olive gray pelagic clay containing fine silt-size quartz can easily be mistaken as mud. In the present work, we have used water depth, geographic location, and available regional information surrounding the core site as aids in naming the sediments correctly. In general, most sediments on the continental slope off Queen Maud Land are glacial-marine sediments, in which mud is common. In the Weddell Abyssal Plain, the sediments are pelagic clay, generally of brownish color, and occasionally olive gray.

In general, all minerals in the sediment are considered as clastics. However, this is not true in marine sediments, because authigenic minerals, such as glauconite, micro-Mn nodules, and zeolites, are also present in small quantities.

Glauconite content can be as high as 20% in marine sediments, but in this case the glauconite has been transported and enriched because of the action of various bottom currents. Furthermore, some "glauconites" are actually composed of aggregates of green minerals, which are commonly clastics.

CLASSIFICATION OF MARINE SEDIMENTS

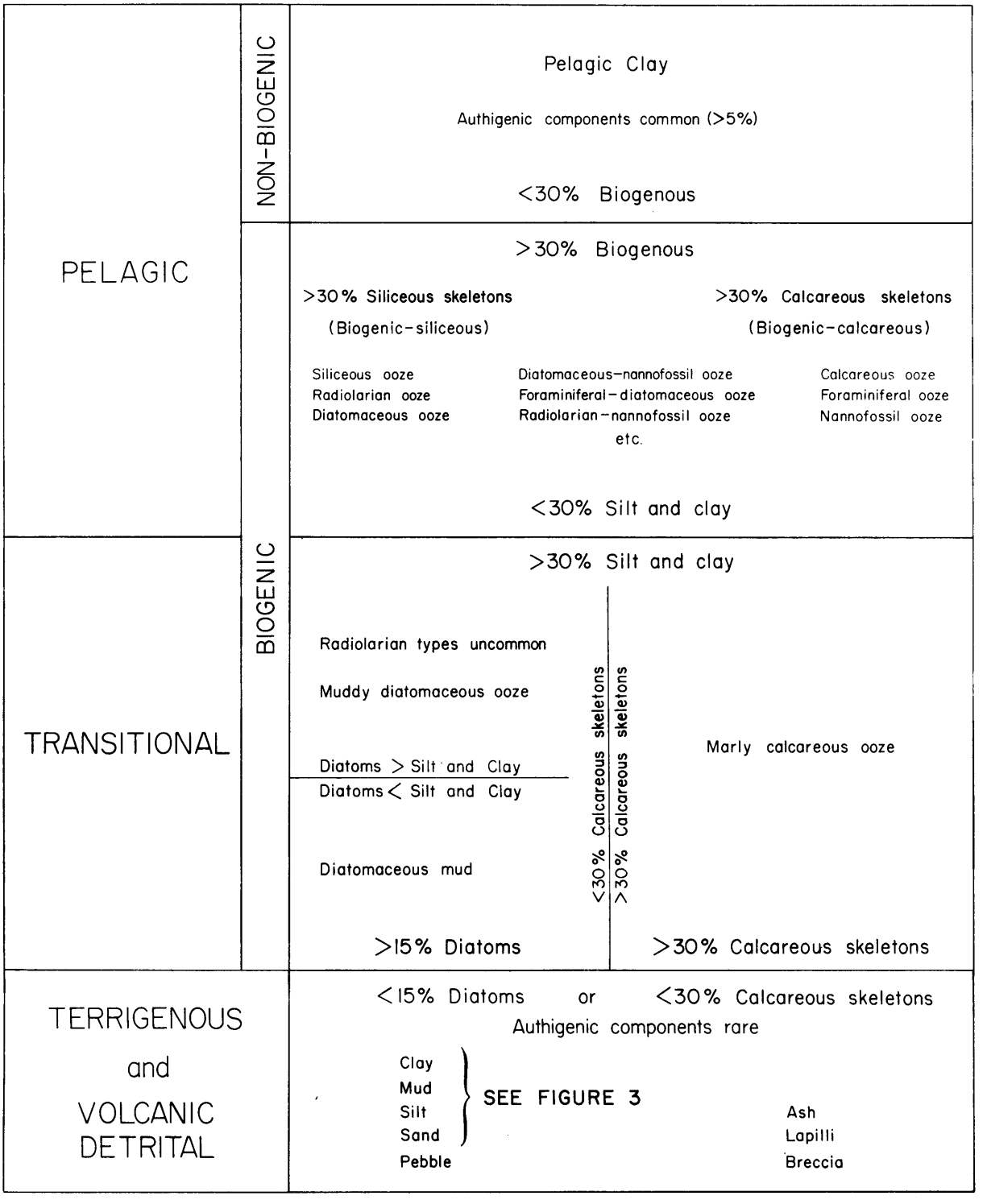
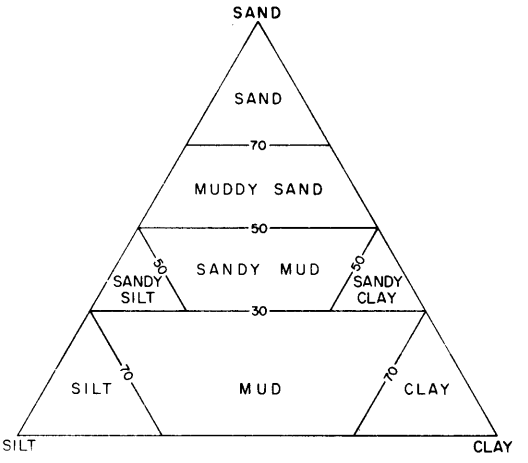


FIGURE 2

FIGURE 3 ▶



CLASSIFICATION OF CLASTIC SEDIMENTS

LIMITING SIZE in mm	SIZE CLASS	
64	VERY COARSE	PEBBLES
32	COARSE	
16	MEDIUM	
8	FINE	
4	VERY FINE	
2	VERY COARSE	SAND
1	COARSE	
.5	MEDIUM	
.25	FINE	
.125	VERY FINE	
.062	COARSE	SILT
.031	MEDIUM	
.016	FINE	
.008	VERY FINE	
.004	CLAY	

STANDARD SIZE CLASSES OF SEDIMENT
(MODIFIED AFTER FRIEDMAN AND SANDERS, 1978)

◀ FIGURE 4

BASAL SEDIMENT AGES

OF ISLAS ORCADAS CRUISE 1678 PISTON CORES

The following text is that of an article appearing in the Antarctic Journal of the United States (Jones et al., 1979), and has been reproduced in this volume by consent of the authors. References cited are to be found in the references section of this volume; italicized statements are those which have been added to the original text.

"ARA ISLAS ORCADAS cruise 16 was the last of five United States-sponsored, multidisciplinary cruises to conduct an extensive coring program in the South Atlantic sector of the Southern Ocean. The following is the final installment in a series of reports (Ciesielski and Wise, 1977); Ciesielski et al., 1978; DeFelice, 1978; and Ciesielski and Jones, 1979) which give the preliminary ages of the lowest undisturbed lithologic unit dateable by the use of microfossils. In all, the cruises recovered 263 piston cores, including the 70 recovered on cruise 16. The preliminary piston core basal sediment ages, along with the corresponding piston core number, latitude, longitude, core length, water depth, interval sampled, and sediment lithology are listed in *table 2, this volume*. The purpose of these preliminary reports is to provide the scientific community with timely information helpful in the selection of core materials pertinent to their research.

The objectives of the cruise 16 coring program, as mentioned in Wise et al. (1978), included a survey of pre-Pliocene sediments along the eastern Falkland (Malvinas) Plateau, Northeastern Georgia Rise, and the Islas Orcadas Rise in order to elucidate the pre-Pliocene geologic history of the region *(figure 1, this volume)*. Additional cores were taken east and northeast of the Scotia Arc in order to study the extent and effect on sediments of antarctic deep water. To recover pre-Pliocene sediments, coring sites were placed in areas where the overlying blanket of oozes and glacial marine clastics were thin. Core sites were determined by age-dating the cores immediately after recovery and then using this information to select subsequent sites. We feel the success of this procedure partially accounts for the large number of pre-Pliocene cores recovered on the eastern Falkland Plateau. In this area, 23 of the 34 cores attempted penetrated pre-Pliocene sediments, consisting predominantly of siliceous and calcareous oozes.

Sampling: Of the 70 cores recovered on cruise 16, only 39 had been opened at the time of this writing. Therefore, only the core catcher and/or cutter (C/C) samples, or bag samples from the base of the cores, were available for age determinations for the remaining 31 cores. If an age-date sample was obtained from a bag sample the approximate interval occupied by the bag sample (and thus the age-date sample) is listed in the table (this interval may be revised after the core has been opened and measured). For most cores only a single age-date sample was collected within 5 cm of the core base. Cores with disturbed basal sediments also were sampled a few centimeters above the disturbance.

Laboratory: Smear slides were prepared from all age-date samples at the stated intervals in the table and then examined for their diatom, silicoflagellate, and calcareous nannofossil content. The intervals were then age-dated utilizing the biostratigraphic zonations defined by McCollum (1975) as modified by Weaver (1976) for diatoms, Ciesielski (1975) as modified by Busen and Wise (1977) for silicoflagellates, and Wise and Wind (1977) for calcareous nannofossils. The geologic time scale as presented by Berggren *and Van Couvering* (1974) was utilized. It should be noted that this scale recognizes only an early and late Pliocene, thus no "middle" Pliocene ages appear in *table 2, this volume*. The same is true for the Oligocene. Lithologic names were derived following the criteria outlined in Kaharoeddin (1978). All core lengths are undescribed lengths and are subject to change.

No age determinations were given for three attempted cores for which there was no recovery (cores 40, 42 and 95) and for four cores for which the basal sediments were nonfossiliferous zeolitic clays (cores 27, 29, and 36) or a manganese crust (core 72). One core (core 120) was returned unopened to the Argentine Naval Hydrographic Office, Buenos Aires, Argentina.

> Since none of the cores have been described or subjected to a detailed biostratigraphic examination, these basal age-dates must be considered preliminary. A thorough examination of each core is needed in order to determine the extent of reworking and contamination which could lead to an improper age assignment.
>
> We appreciate the assistance of Dennis Cassidy, Tom Fellers, LaVerne Lamb, and Rosemarie Raymond in the preparation of this article. The research was carried out under National Science Foundation grants DPP 77-19360 and DPP 78-07183."

The table of age-dates (table 2) presented in this chapter is a revised version of that appearing in the original article. The revisions include: substitution of described core lengths for undescribed core lengths, adjustments to the assigned sample interval depths, and changes in many of the names of sediment lithologies from which the samples were removed.

Although these revisions do not alter the assigned ages, it is important to emphasize that these basal age-dates are preliminary. At the time of sampling, 30 of the cores had not been opened, nor had any of the cores been described. The unopened cores were sampled either at their base (just above the end cap) or from bagged sediment recovered from the core cutter and/or core catcher. Samples taken in this manner are not necessarily representative of the basal lithology of the core; the small amount of sediment used for age-dating may have been from a sedimentary clast containing reworked specimens. It is also possible that the basal part of the sediment column had been severely disturbed by flow-in. Upon being opened, 23 of the 30 unopened cores were found to have been disturbed by flow-in, with the lengths of disturbance ranging from 1,754 cm above the base of core 111, to 35 cm above the base of core 81.

TABLE 2

BASAL SEDIMENT AGES OF PISTON CORES

Core Number	Latitude(S)	Longitude(W)	Water Depth(m)	Sample Interval(cm)**	Sediment Lithology****	Core Length(cm)	Age*****
18	49°43.4'	47°17.3'	2345	166-178(Bag sample)	GPbS	178	Early Pliocene
19	50°11.1'	46°53.0'	2725	316-317;C/C	MDO	447	Late Oligocene
20	50°17.0'	46°40.1'	2498	143-144	DM	144	Eocene to Early Oligocene
21*	50°21.2'	46°31.9'	2262	C/C	DNO	530	Middle to Late Miocene
22	50°31.1'	46°43.6'	2420	446-447;C/C	MDO	563	Early Pliocene
23	50°42.0'	47°03.3'	2520	88-89	FS	89	Quaternary
24	50°45.1'	47°14.2'	2505	19-20	GSFO	20	Quaternary
25*	50°52.6'	47°26.5'	2573	C/C	DO	527	Middle to Late Miocene
26*	51°18.6'	46°59.2'	2703	Core Catcher	GMDO	230	Late Miocene
27	51°22.4'	45°43.8'	2264	376-377(Bag Sample)	PC	377	NADP
28	51°14.2'	45°43.4'	2557	∿500(Bag Sample)***	GS	196***	Late Oligocene
29	51°00.3'	45°41.9'	2182	49-50(Bag Sample)	ZC	50	NADP
30	50°56.6'	45°41.6'	2012	371-372(Bag Sample)	DNO	372	Middle to Late Miocene
31	49°53.7'	46°00.6'	3091	460-461;C/C	GDS	570	Late Pliocene
32	50°08.4'	46°00.1'	2771	84-85;C/C	DNO	105	Oligocene
33	50°13.9'	45°59.9'	2465	306-307; Core Catcher	DNO	509	Middle to Late Miocene
34	50°09.9'	45°54.0'	2769	Core Catcher	DNO	279	Middle to Late Miocene
35	50°15.0'	45°22.5'	2429	Core Catcher	RFNO	520	Late Paleocene
36	50°13.4'	45°25.8'	2622	C/C	ZC	492	NADP
37	50°21.8'	44°32.6'	1580	51-52;C/C	NO	415	Late Paleocene
38	50°18.1'	44°18.3'	1595	228-229;C/C	NO	309	Late Paleocene
39	50°10.6'	43°44.8'	1840	210-211;C/C	CaO	500	Late Paleocene
41	50°14.6'	43°35.8'	1655	33-34;C/C	NO	210	Late Paleocene
43	49°57.3'	42°43.6'	1706	Core Catcher	NO	188	Late Eocene
44	49°58.7'	42°38.4'	1677	46-47;C/C	NO	257	Middle to Late Eocene
45	50°02.5'	42°38.3'	1624	73-74	DNO	74	Late Eocene
46	50°00.2'	42°10.7'	1693	26-27(Bag Sample)	NO	27	Middle Eocene
47	49°59.4'	41°47.0'	1529	72-73;C/C	SiNO	281	Late Oligocene
48	49°58.3'	41°44.8'	1598	51-52;C/C	NO	532	Late Oligocene
49	49°47.5'	41°41.4'	1708	36-37;C/C	FNO	99	Late Paleocene
50	49°43.2'	41°43.0'	1726	C/C	DO	27	Middle to Late Miocene
51	49°43.0'	41°36.2'	1792	Core Catcher	FGS	27	Quaternary
52*	50°37.4'	39°43.0'	3936	C/C	MDO	1762	Quaternary
55	51°45.4'	34°01.5'	2533	C/C	SDO	280	Early Pliocene
56	51°50.2'	33°54.4'	2374	Core Catcher	MDO	777	Early Pliocene
57	51°53.2'	33°48.4'	2185	Core Catcher	DS	284	Quaternary
63*	54°52.4'	25°00.3'	4389	C/C	DO	838	Quaternary
64*	54°00.5'	24°11.7'	4515	644-659(Bag Sample)	MDO	659	Quaternary
65*	53°05.1'	22°57.3'	4331	Core Cutter	DM	1107	Quaternary
66*	51°59.6'	21°42.1'	4422	C/C	DO	1086	Quaternary
67*	51°26.4'	22°53.4'	4588	C/C	MDO	162	Early Pliocene
68*	51°04.3'	20°38.8'	4422	C/C	DO	1741	Quaternary
70*	49°59.8'	19°25.5'	4214	Core Catcher	DO	1105	Quaternary
72	49°01.5'	18°23.1'	4042	C/C	Mn	BAG	NADP
73*	48°24.6'	17°55.1'	3877	C/C	DO	1030	Quaternary
76*	47°10.1'	16°17.6'	3312	C/C	NDO	1148	Quaternary
80*	47°57.0'	13°01.4'	3102	C/C	DO	1167	Quaternary
81*	48°59.9'	13°20.2'	3464	C/C	DO	1207	Quaternary
83*	50°56.8'	14°03.4'	3742	C/C	DO	1718	Quaternary
84*	51°57.5'	14°25.2'	3952	C/C	DO	1049	Quaternary
87*	55°11.9'	15°50.6'	3738	C/C	DO	1761	Quaternary
89*	57°03.6'	18°32.4'	4285	C/C	DO	1717	Quaternary
90*	57°30.8'	17°22.7'	4545	Core Catcher	DM	1715	Early Pliocene
91*	58°09.9'	17°48.5'	3954	1734-1735	ABDO	1735	Quaternary
96*	60°27.9'	21°37.1'	4177	C/C	VA	845	Quaternary
98*	59°50.3'	23°25.9'	4631	C/C	DO	1146	Quaternary
103	51°30.5'	25°11.9'	3028	486-487;C/C	DO	1036	Early Pliocene
104	51°29.5'	25°27.7'	2999	79-80;C/C	NO	662	Early Oligocene
105	51°31.2'	25°30.4'	3122	219-220	SDO	220	Early Pliocene
106	51°31.3'	25°28.0'	3091	46-47	RSDO	47	Quaternary
107	51°31.3'	25°25.9'	2986	Core Catcher	SDO	401	Early Pliocene
108	51°31.6'	25°43.5'	2772	Core Cutter	SDO	444	Early Pliocene
109	50°46.3'	26°04.1'	2999	265-266;Core Cutter	NO	1089	Middle to Late Miocene
111*	48°59.9'	26°57.6'	4331	C/C	DO	1797	Quaternary
112*	48°09.3'	27°58.7'	4374	C/C	DM	1761	Quaternary
114*	46°40.9'	30°07.4'	4716	1765-1766	DM	1766	Quaternary
115*	46°00.6'	31°05.8'	5047	C/C	PC	1780	Quaternary
116*	44°59.9'	32°06.5'	5044	C/C	PC	1700	Quaternary
117*	44°01.2'	33°05.3'	5201	C/C	MDO	1786	Quaternary
120*	38°10.0'	46°03.6'	5024	∿143(Bag sample)***	PC	∿143***	Quaternary

* Cores sampled prior to having been opened.

** C/C = Sediments recovered from the core cutter and core catcher are bagged together in one bag.

*** See notes accompanying the piston core description.

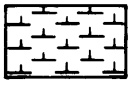
**** ABDO = ash-bearing, diatomaceous ooze
CaO = calcareous ooze
DM = diatomaceous mud
DNO = diatomaceous, nannofossil ooze
DO = diatomaceous ooze
DS = diatomaceous sand
FGS = foraminiferal, glauconitic sand
FNO = foraminiferal, nannofossil ooze
FS = foraminiferal sand
GDS = glauconitic, diatomaceous sand
GMDO = glauconitic, muddy, diatomaceous ooze
GPbS = glauconitic, pebbly sand
GS = glauconitic sand
GSFO = glauconitic, sandy, foraminiferal ooze
MDO = muddy, diatomaceous ooze
Mn = manganese pavement
NDO = nannofossil, diatomaceous ooze
NO = nannofossil ooze
PC = pelagic clay
RSDO = radiolarian, sandy, diatomaceous ooze
RFNO = radiolarian, foraminiferal, nannofossil ooze
SDO = sandy, diatomaceous ooze
SiNO = siliceous, nannofossil ooze
VA = volcanic ash
ZC = zeolitic clay

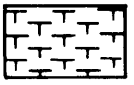
NOTE: The dominant component of the bagged core catcher sediments for cores 26 and 51 is gravel (pebbles). Samples used for age determinations were taken from minor amounts of matrix sediment found in the bags.

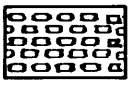
***** NADP = No age date possible; barren.

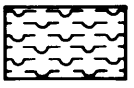
KEY

SYMBOLS USED FOR CORE DESCRIPTIONS


Nannofossil ooze

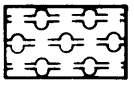

Foraminiferal ooze

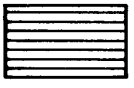

Calcareous ooze

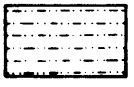

Diatomaceous ooze

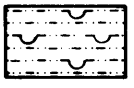

Muddy, diatomaceous ooze

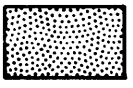

Radiolarian ooze

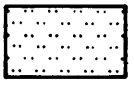

Siliceous ooze*


Clay
Pelagic clay


Mud


Diatomaceous mud

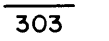

Sand


Muddy sand


Pebbles
Conglomerates

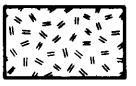
Gradational contact

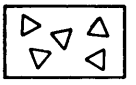
Sharp contact

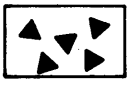


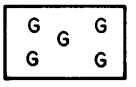
Core section "breaks"

Scale change

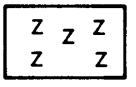

Volcanic ash
(common to abundant if <15%)


Lapilli


Chert

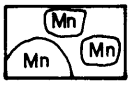


Glauconite
(common to abundant if <10%)

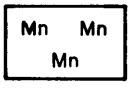


Zeolite

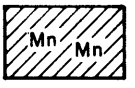

Sedimentary clasts



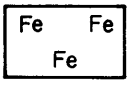
Manganese nodules



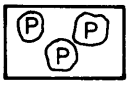
Micro-manganese nodules
(common to abundant)
Manganese oxide stained
(moderately to highly)



Manganese pavement



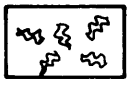
Iron oxide stained
(moderately to highly)



Phosphate nodules


Wood fragment


Mottling

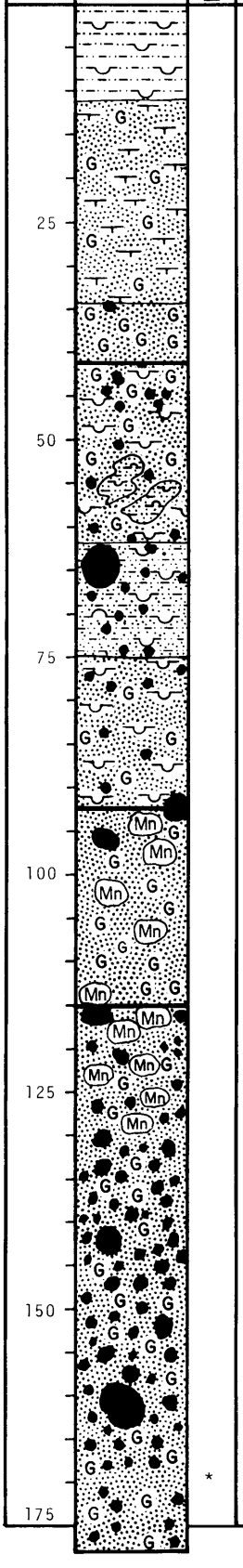

Bioturbation


Slightly disturbed

Moderately to highly disturbed

* Further comments on the use of this symbol will be found in part D.6. of Terrigenous Detrital Sediments, page 17.

ISLAS ORCADAS PC 1678-18



LATITUDE: 49°43.4' S WATER DEPTH: 2345 M, 1282 FM

LONGITUDE: 47°17.3' W CORE LENGTH: 178 CM

LITHOLOGIC DESCRIPTION

0-41 cm: Glauconitic, foraminiferal sand, moderate olive brown (5Y 4/4); grain size increases with depth, from very fine to coarse sand; layer of diatomaceous mud, light olive gray (5Y 5/2), between 0-11 cm; layer of glauconitic sand, olive gray (5Y 3/2), between 34-41 cm; 7 mm subangular pebble between 34-35 cm; sharp contact.

smear slide:	16 cm		
Quartz	42	Foraminifera	19
Feldspar	<1	Calcareous nannos	<<1
Heavy minerals	3	Diatoms	6
Clay	12	Radiolarians	7
Glauconite	10	Sponge spicules	<1
Carbonate unspecified	1	Silicoflagellates	<1

41-92 cm: Glauconitic, diatomaceous sand, yellowish gray (5Y 7/2); sand is medium, poorly sorted; zone of higher silt content between 75-92 cm; layer of sandy, radiolarian, diatomaceous mud between 62-75 cm; mixture of sandy, radiolarian, diatomaceous mud and glauconitic, diatomaceous sand between 52-60 cm; 25 mm pebble encrusted with manganese oxide between 90-93 cm; 30 mm subrounded pebble between 62-67 cm; fine to medium pebbles, encrusted with manganese oxide, abundant between 41-47 cm and 59-80 cm; very fine to medium pebbles common between 47-59 cm and 80-92 cm; sharp contact.

smear slides:	50 cm	(zone) 87 cm
Quartz	35	56
Feldspar	<1	<1
Heavy minerals	3	1
Clay	13	10
Volcanic glass	1	<1
Glauconite	12	5
Carbonate unspecified	1	-
Foraminifera	10	<<1
Diatoms	17	20
Radiolarians	7	7
Sponge spicules	1	1
Silicoflagellates	<<1	<1

92-115 cm: Glauconitic sand, moderate olive brown (5Y 4/4); fine to very coarse sand, poorly sorted; 17 mm pebble encrusted with manganese oxide between 95-97 cm; manganese nodules from 3-12 mm common throughout; sharp contact.

smear slide:	99 cm		
Quartz	43	Carbonate unspecified	<1
Feldspar	1	Foraminifera	4
Heavy minerals	3	Diatoms	6
Clay	9	Radiolarians	5
Volcanic glass	<1	Sponge spicules	1
Glauconite	28	Silicoflagellates	<<1

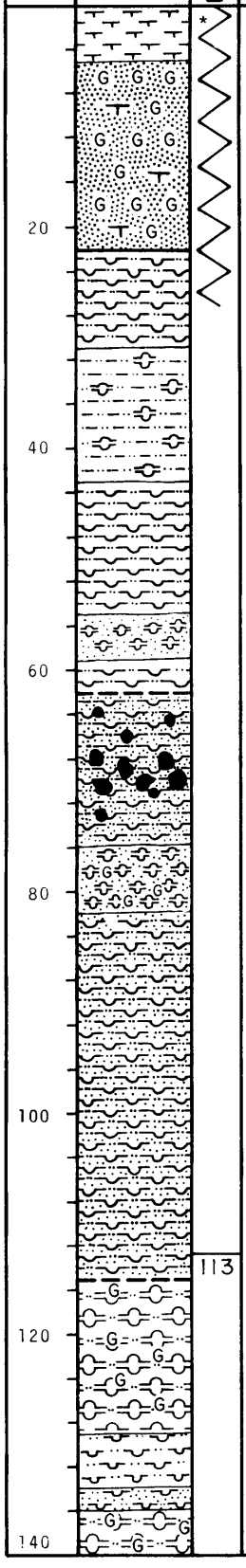
115-178 cm: Glauconitic, pebbly sand, light olive gray (5Y 5/2); fine to very coarse sand, poorly sorted; pebbles are very fine to coarse; 18 mm sandstone pebble between 141-143 cm, light olive brown (5Y 5/6); 20 mm pebble encrusted with manganese oxides between 115-117 cm; 35 mm subangular pebble between 158-163 cm; manganese nodules between 115-118 cm (27 mm) and 116-119 cm (23 mm); manganese nodules from 8-13 mm common between 115-129 cm. NOTE: Use of the binocular microscope reveals that the sand size fraction of this unit is essentially identical to that of the overlying unit (92-115 cm).

Bottom topography: very gently sloping.

*NOTE: Sediment between 166-178 cm is bagged.

Logged by: Humphreys, Harwood, Eggers

ISLAS ORCADAS PC 1678-19



LATITUDE: 50°11.1′ S
LONGITUDE: 46°53.0′ W
WATER DEPTH: 2725 M, 1490 FM
CORE LENGTH: 447 CM

LITHOLOGIC DESCRIPTION

0-22 cm: Foraminiferal, glauconitic sand, light olive gray (5Y 5/2); sand is fine, and sand content increases with depth between 5-11 cm; layer of foraminiferal ooze, yellowish gray (5Y 7/2) between 0-5 cm; highly disturbed due to implosion of core liner; sharp contact.

smear slides:	(layer) 3 cm	13 cm
Quartz	8	26
Feldspar	-	1
Heavy minerals	1	1
Clay	<<1	4
Volcanic glass	1	1
Rock fragments	-	2
Glauconite	3	30
Carbonate unspecified	3	2
Foraminifera	76	20
Calcareous nannos	1	2
Diatoms	7	10
Radiolarians	<1	2
Sponge spicules	<1	<1
Silicoflagellates	<<1	<<1

22-62 cm: Muddy, diatomaceous ooze, dusky yellow (5Y 6/4), moderate olive brown (5Y 4/4) between 22-31 cm; 12 cm layer of indurated radiolarian-diatomaceous mud, light olive brown (5Y 5/6), between 31-43 cm; 4 cm layer of sandy, siliceous ooze, dusky yellow (5Y 6/4), between 55-59 cm; highly disturbed due to implosion of the core liner between 22-27 cm; gradational contact.

smear slides:	25 cm	(layer) 42 cm
Quartz	19	9
Feldspar	<1	1
Mica	<<1	-
Heavy minerals	2	<1
Clay	20	44
Volcanic glass	<1	<1
Glauconite	4	4
Carbonate unspecified	<1	-
Diatoms	41	29
Radiolarians	13	12
Sponge spicules	1	1
Silicoflagellates	<<1	<<1

62-115 cm: Sandy, muddy, diatomaceous ooze, light olive gray (5Y 5/2); layer of glauconitic, sandy, siliceous ooze, light olive brown (5Y 5/6), between 76-82 cm; laminae (up to 8 mm) of diatomaceous, glauconitic sand, olive gray (5Y 4/1), common between 97-108 cm; discontinuous stringers of diatomaceous ooze, yellowish gray (5Y 7/2), between 73-74 cm and 100-102 cm; fine to medium pebbles common between 63-74 cm; medium to coarse pebbles abundant between 67-72 cm; gradational contact. NOTE: Smear slide biased toward the fine fraction.

smear slide:	67 cm
Quartz	14
Feldspar	1
Heavy minerals	1
Clay	20
Volcanic glass	2
Rock fragments	<1
Glauconite	1
Diatoms	56
Radiolarians	5
Sponge spicules	<1
Silicoflagellates	<1

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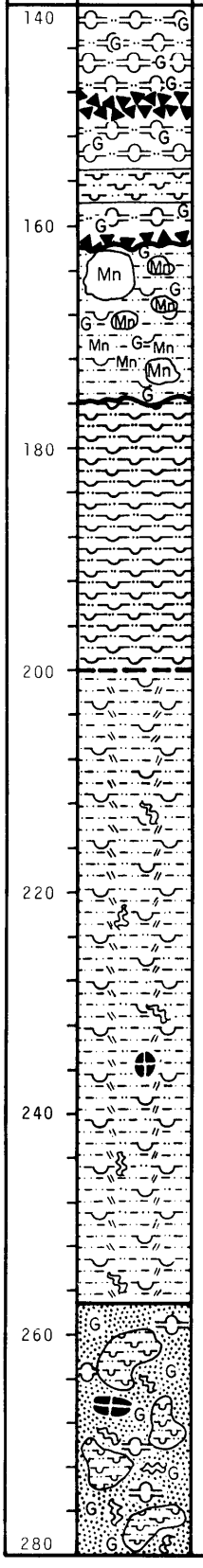

LATITUDE: 50°11.1′ S
LONGITUDE: 46°53.0′ W
WATER DEPTH: 2725 M, 1490 FM
CORE LENGTH: 447 CM

LITHOLOGIC DESCRIPTION

115-162 cm: Glauconitic, muddy, siliceous ooze, light olive brown (5Y 5/6); slightly indurated between 115-129 cm; moderately indurated between 136-148 cm, 151-155 cm, and 158-161 cm; layers of muddy, diatomaceous ooze, dusky yellow (5Y 6/4), between 129-134 cm (5 cm) and 155-158 cm (3 cm); 2 cm layer of sandy, muddy, diatomaceous ooze, light olive gray (5Y 5/2), between 134-136 cm; layers of fragmented chert, dusky yellowish brown (10YR 2/2), between 148-151 cm (3 cm) and 161-162 cm (0.5 cm); sharp, irregular contact.

smear slides:	(layer) 131 cm	158 cm
Quartz	8	32
Feldspar	-	<<1
Heavy minerals	<1	<<1
Clay	30	-
Volcanic glass	1	4
Glauconite	-	18
Foraminifera	-	<<1
Diatoms	58	20
Radiolarians	2	24
Sponge spicules	-	2
Silicoflagellates	1	<<1

162-176 cm: Glauconitic, diatomaceous mud, light olive gray (5Y 5/2); 42 mm manganese nodule between 162-167 cm; 26 mm manganese nodule between 172-175 cm; manganese nodules up to 22 mm common between 162-170 cm; manganese oxides abundant between 171-173 cm; sharp, irregular contact.

smear slide:	172 cm		
Quartz	20	Glauconite	10
Feldspar	<1	Diatoms	33
Heavy minerals	<1	Radiolarians	6
Clay	28	Sponge spicules	1
Volcanic glass	2	Silicoflagellates	<1

176-200 cm: Muddy, diatomaceous ooze, yellowish gray (5Y 7/2); discontinuous laminae of radiolarian, glauconitic sand common throughout; 1 cm lamina of radiolarian, glauconitic sand between 199-200 cm; gradational contact.

smear slide:	192 cm		
Quartz	7	Glauconite	1
Feldspar	<<1	Diatoms	49
Heavy minerals	<1	Radiolarians	2
Clay	39	Sponge spicules	2
Volcanic glass	<1	Silicoflagellates	<<1

200-257 cm: Ash-bearing, diatomaceous mud, light olive gray (5Y 5/2); 1.5 cm layer of radiolarian, glauconitic sand, light olive brown (5Y 5/6), between 224-226 cm; 10 mm sedimentary clast between 235-237 cm, composed of radiolarian, glauconitic sand, light olive brown (5Y 5/6); slightly bioturbated between 211-257 cm; sharp contact.

smear slide:	244 cm		
Quartz	7	Glauconite	2
Feldspar	1	Diatoms	18
Heavy minerals	3	Radiolarians	3
Clay	26	Sponge spicules	1
Volcanic glass	39	Silicoflagellates	<<1

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Logged by: Graves, Bergen, Kaharoeddin, Harwood, Humphreys

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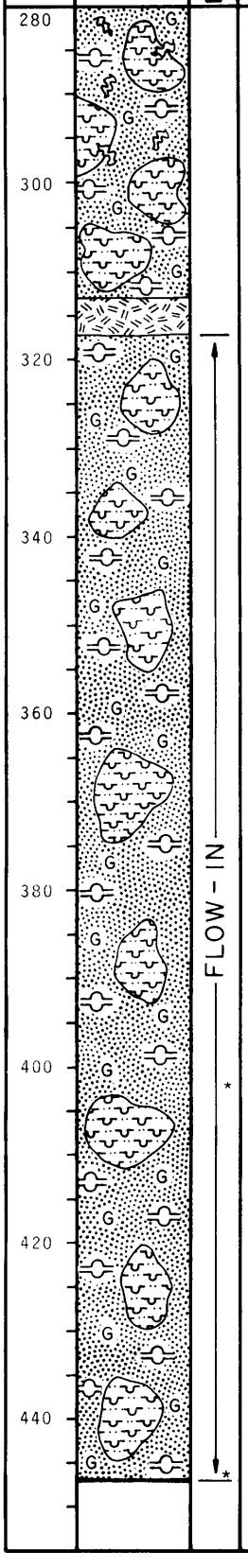


LATITUDE: 50°11.1′ S
LONGITUDE: 46°53.0′ W
WATER DEPTH: 2725 M, 1490 FM
CORE LENGTH: 447 CM

LITHOLOGIC DESCRIPTION

257-447 cm: Intermixed, muddy, diatomaceous ooze, light olive gray (5Y 5/2), and glauconitic, radiolarian-diatomaceous sand, light olive gray (5Y 5/2); 4 cm layer of volcanic ash, moderate yellowish brown (10YR 5/4), between 313-317 cm; discontinuous stringers of radiolarian, glauconitic sand common between 270-284 cm; 6 mm sedimentary clast between 266-267 cm, composed of radiolarian, glauconitic sand, light olive brown (5Y 5/6); moderately bioturbated between 264-298 cm; flow-in between 317-447 cm. NOTE: Smear slides are biased toward the fine fraction.

smear slides:	274 cm	296 cm
Quartz	13	41
Feldspar	1	<1
Heavy minerals	1	4
Clay	16	8
Volcanic glass	1	2
Glauconite	<<1	10
Diatoms	62	20
Radiolarians	5	12
Sponge spicules	1	3
Silicoflagellates	<1	-
Ebridians	<<1	-

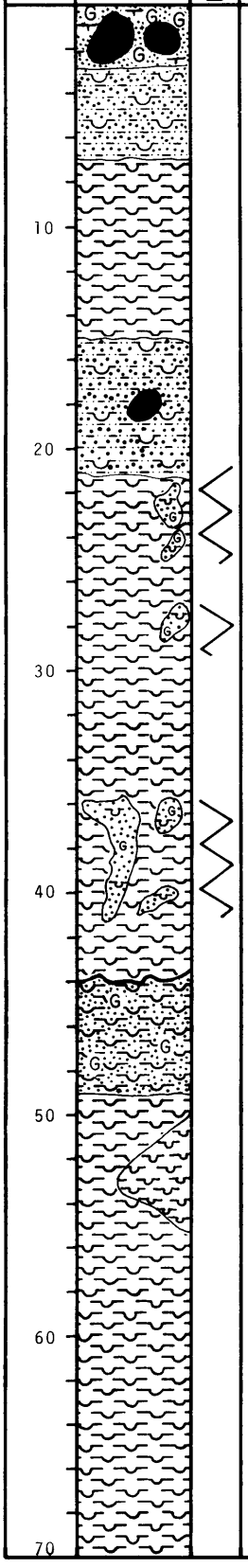
CORE CUTTER AND CATCHER (185 grams): sediment is the same as that of overlying unit.

Bottom topography: flat; 5 km northwest of the northwestern portion of the Maurice Ewing Bank.

*NOTE: Sediment between 0-1 cm, 398-407 cm, and 445-447 cm is bagged.

Logged by: Graves, Bergen, Kaharoeddin, Harwood, Humphreys

ISLAS ORCADAS PC 1678-20



LATITUDE: 50°17.0′ S
LONGITUDE: 46°40.1′ W
WATER DEPTH: 2498 M, 1366 FM
CORE LENGTH: 144 CM

LITHOLOGIC DESCRIPTION

0-44 cm: Diatomaceous ooze, light olive (10Y 5/4); highly compacted to partially indurated between 21-44 cm; highly compacted to well indurated between 7-15 cm; unit is highly fractured, weathered to pale olive (10Y 6/2), soft, along fractures; layer between 0-3 cm composed of foraminiferal, glauconitic sand, olive gray (5Y 3/2); layers between 3-7 cm and 15-21 cm composed of sandy, diatomaceous mud, light olive brown (5Y 5/6); subrounded pebbles between 0-3 cm (25 mm andesite), between 1-3 cm (18 mm basalt), and between 17-19 cm (17 mm, metamorphic); moderately disturbed (washed) between 21-25 cm, 27-29 cm and 36-41 cm; sediment from underlying unit (glauconitic, sandy, diatomaceous ooze), light olive gray (5Y 5/2), mixed with main lithology; sharp, irregular contact.

smear slides:	24 cm	(weathered) 30 cm
Quartz	1	<1
Feldspar	<1	1
Clay	5	4
Diatoms	88	89
Radiolarians	1	<1
Sponge spicules	<<1	<<1
Silicoflagellates	5	6

44-94 cm: Diatomaceous ooze, light olive gray (5Y 5/2), abruptly changing at 81 cm to yellowish gray (5Y 8/1); layer between 44-49 cm composed of glauconitic, sandy, diatomaceous ooze, light olive gray (5Y 5/2); layer between 76-81 cm composed of nannofossil, diatomaceous ooze, light olive gray (5Y 5/2); layer between 81-94 cm composed of diatomaceous, nannofossil ooze, yellowish gray (5Y 8/1); lens between 50-55 cm composed of diatomaceous ooze, yellowish gray (5Y 7/2); 14 mm sedimentary clast between 92-94 cm, composed of diatomaceous ooze, light olive brown, (5Y 5/6), moderately compacted; slightly stained with manganese oxides between 44-81 cm; sharp, irregular contact.

smear slides:	62 cm	(layer) 88 cm
Quartz	2	<1
Feldspar	<<1	<1
Heavy minerals	<1	-
Clay	4	<1
Volcanic glass	<1	-
Micro-Mn nodules	<1	1
Carbonate unspecified	2	-
Foraminifera	<1	<<1
Calcareous nannos	1	60
Diatoms	90	38
Radiolarians	1	1
Sponge spicules	<<1	<1
Silicoflagellates	<<1	<<1

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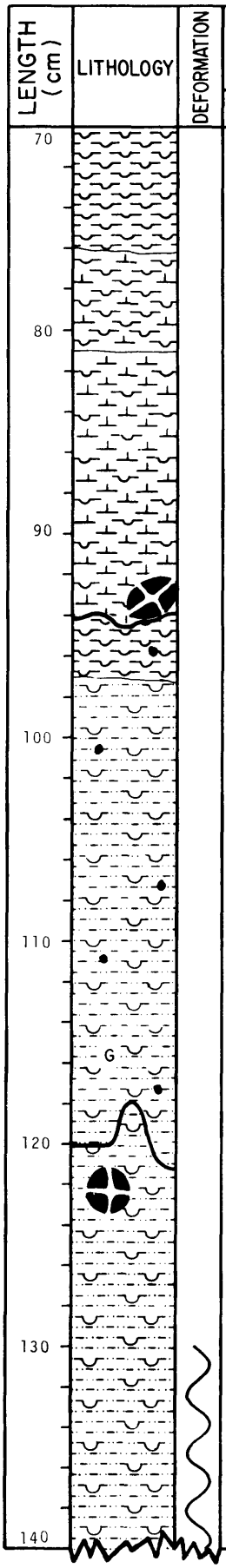
Logged by: Eggers

ISLAS ORCADAS PC 1678-20



LATITUDE: 50°17.0′ S
LONGITUDE: 46°40.1′ W
WATER DEPTH: 2498 M, 1366 FM
CORE LENGTH: 144 CM

LITHOLOGIC DESCRIPTION

94-119 cm: Diatomaceous mud, pale olive (10Y 6/2); unit is moderately indurated; layer between 94-97 cm composed of diatomaceous ooze, light olive brown (5Y 5/6), moderately indurated; 10 mm concentration of glauconite between 115-116 cm; pebbles up to 6 mm sparsely scattered throughout; sharp, irregular contact.

smear slide:	113 cm
Quartz	4
Feldspar	<1
Heavy minerals	<<1
Clay	71
Glauconite	2
Diatoms	18
Radiolarians	4
Sponge spicules	1
Silicoflagellates	<1

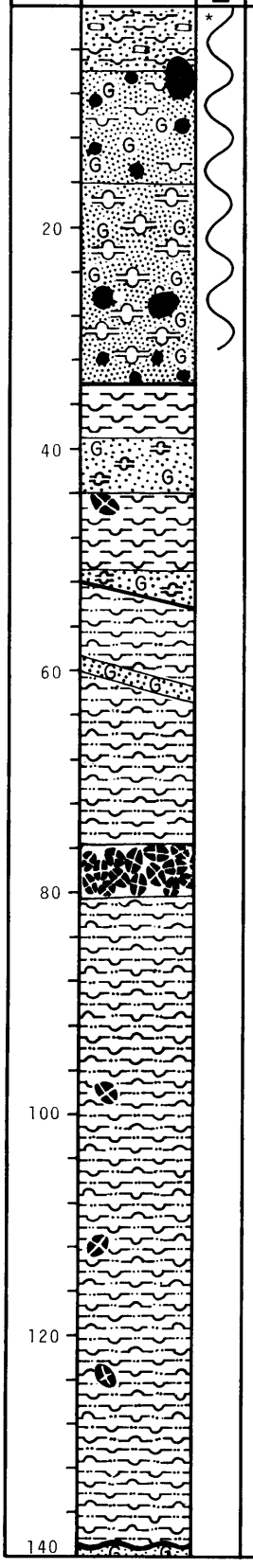
119-144 cm: Diatomaceous mud, yellowish gray (5Y 7/2); 20 mm sedimentary clast between 121-123 cm, composed of diatomaceous mud, pale olive (10Y 6/2), slightly indurated; slightly disturbed between 130-144 cm.

smear slide:	125 cm
Quartz	5
Feldspar	<1
Mica	<<1
Clay	71
Carbonate unspecified	1
Diatoms	19
Radiolarians	3
Sponge spicules	1
Silicoflagellates	<<1
Ebridians	<<1

Bottom topography: gently sloping; near the base of the northwestern flank of the Maurice Ewing Bank.

Logged by: Eggers

ISLAS ORCADAS PC 1678-21



LATITUDE: 50°21.2′ S
LONGITUDE: 46°31.9′ W
WATER DEPTH: 2262 M, 1237 FM
CORE LENGTH: 530 CM

LITHOLOGIC DESCRIPTION

0-34 cm: Glauconitic, radiolarian-diatomaceous sand, olive gray (5Y 3/2); sand is fine, well sorted; 6 cm layer of calcareous, sandy, diatomaceous ooze, light olive gray (5Y 5/2), between 0-6 cm: 10 cm layer of glauconitic, diatomaceous sand, olive gray (5Y 3/2), between 6-16 cm; subrounded pebbles between 4-9 cm (32 mm), 25-27 cm (19 mm), and 26-28 cm (19 mm); very fine to fine pebbles common between 6-16 cm and 31-34 cm; slightly disturbed between 0-31 cm; sharp contact.

smear slides:	(layer) 7 cm	31 cm
Quartz	49	38
Feldspar	<1	<<1
Heavy minerals	1	<1
Clay	-	2
Volcanic glass	<1	<1
Glauconite	14	15
Carbonate unspecified	<1	<1
Foraminifera	3	<1
Diatoms	29	24
Radiolarians	4	20
Sponge spicules	<1	1
Silicoflagellates	-	<<1

34-53 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); zone of higher mud content between 44-48 cm; layers of glauconitic, radiolarian-diatomaceous sand, olive gray (5Y 3/2), between 39-44 cm (5 cm) and 51-53 cm (1 cm); 13 mm sedimentary clast between 44-46 cm, composed of radiolarian, muddy, diatomaceous ooze, moderate olive brown (5Y 4/4); slightly washed along the side; sharp, inclined contact.

smear slide:	37 cm
Quartz	11
Feldspar	<1
Heavy minerals	1
Clay	2
Volcanic glass	1
Glauconite	6
Diatoms	71
Radiolarians	8
Sponge spicules	<1
Silicoflagellates	<<1

53-139 cm: Radiolarian, muddy, diatomaceous ooze, light olive gray (5Y 5/2); zone of lower mud content between 124-138 cm; zone of abundant carbonate between 112-134 cm; 1 cm inclined layer of glauconitic sand, olive gray (5Y 3/2), between 59-62 cm; 5 cm layer of sedimentary clasts up to 5 mm between 75-81 cm, composed of diatomaceous mud, moderate olive brown (5Y 4/4); laminae of glauconitic, radiolarian sand, olive gray (5Y 3/2), common between 110-123 cm; stringer of nannofossil ooze, white (N9), between 134-135 cm; stringers of calcareous, diatomaceous ooze, yellowish gray (5Y 7/2), between 137-139 cm; sedimentary clasts between 97-99 cm (18 mm) and 111-113 cm (15 mm), composed of glauconitic, radiolarian sand, olive gray (5Y 3/2); 18 mm sedimentary clast between 123-125 cm, composed of calcareous-diatomaceous ooze, yellowish gray (5Y 7/2); moderately washed along the side between 53-80 cm; slightly washed along the side between 80-139 cm; sharp, irregular contact. NOTE: Smear slides are biased toward the fine fraction.

smear slides:	59 cm	93 cm
Quartz	21	23
Feldspar	<<1	<1
Heavy minerals	<1	1
Clay	14	15
Volcanic glass	<1	<1
Glauconite	4	5
Carbonate unspecified	<<1	1
Calcareous nannos	-	<<1
Diatoms	49	41
Radiolarians	12	12
Sponge spicules	<<1	2
Silicoflagellates	<<1	<1

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Logged by: Bergen, Graves

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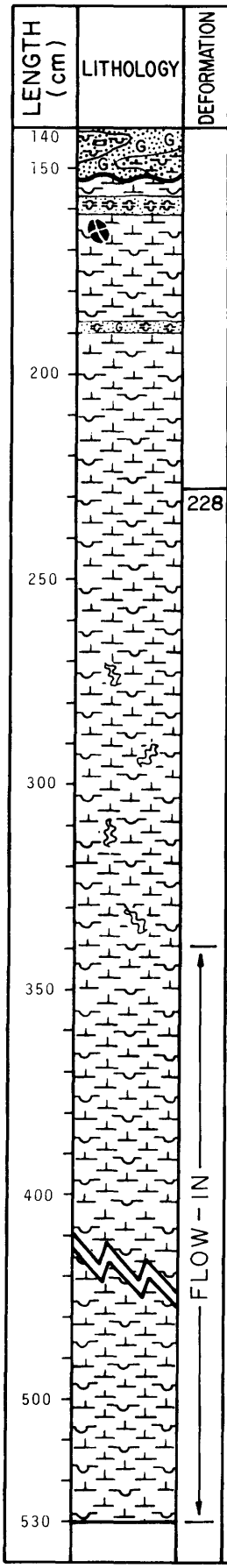


LATITUDE: 50°21.2′ S
LONGITUDE: 46°31.9′ W
WATER DEPTH: 2262 M, 1237 FM
CORE LENGTH: 530 CM

LITHOLOGIC DESCRIPTION

139-153 cm: Glauconitic sand, olive gray (5Y 3/2), very fine, intermixed with sandy, calcareous, diatomaceous ooze, light olive gray (5Y 5/2), and sandy, diatomaceous-nannofossil ooze, yellowish gray (5Y 7/2); slightly washed along the side; sharp, irregular contact.

smear slide:	145 cm
Quartz	56
Feldspar	<1
Heavy minerals	1
Volcanic glass	1
Glauconite	20
Micro-Mn nodules	<<1
Carbonate unspecified	2
Foraminifera	5
Calcareous nannos	4
Diatoms	8
Radiolarians	2
Sponge spicules	1

153-530 cm: Diatomaceous-nannofossil ooze, yellowish gray (5Y 7/2); yellowish gray (5Y 8/1) between 202-218 cm; yellowish gray (5Y 8/1) laminated with yellowish gray (5Y 7/2) between 271-339 cm; zones of higher nannofossil content correspond with a change in color to yellowish gray (5Y 8/1); 4 cm layer of sandy, siliceous ooze, light olive gray (5Y 5/2), between 157-162 cm; 2 cm layer of glauconitic, radiolarian-diatomaceous sand, light olive gray (5Y 5/2), between 188-190 cm; discontinuous laminae of glauconitic, radiolarian-diatomaceous sand, light olive gray (5Y 5/2), between 177-178 cm (8mm) and 216-217 cm (9 mm); 45 mm sedimentary clast between 163-169 cm, composed of glauconitic radiolarian-diatomaceous sand, light olive gray (5Y 5/2); slightly bioturbated between 271-339 cm; slightly washed along the side between 153-178 cm; flow-in between 339-530 cm.

smear slides:	155 cm	182 cm
Quartz	<1	<1
Volcanic glass	<<1	<<1
Glauconite	<<1	-
Micro-Mn nodules	<1	<1
Carbonate unspecified	1	<<1
Foraminifera	<1	<<1
Calcareous nannos	59	55
Diatoms	40	45
Radiolarians	<1	<1
Sponge spicules	<<1	-
Silicoflagellates	<<1	<<1

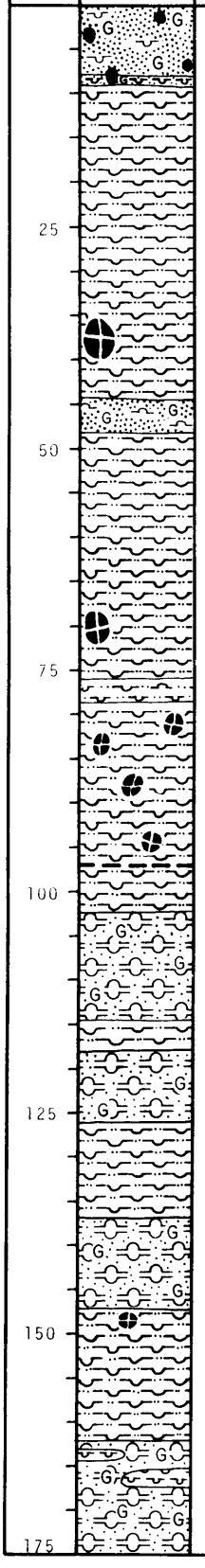
CORE CUTTER AND CATCHER (407 grams): sediment is the same as that of overlying unit.

Bottom topography: gently sloping; on the northwestern flank of, and near the base of, the Maurice Ewing Bank.

*NOTE: Sediment between 0-2 cm is bagged.

Logged by: Bergen, Graves

ISLAS ORCADAS PC 1678-22



LATITUDE: 50°31.1′ S WATER DEPTH: 2420 M, 1323 FM

LONGITUDE: 46°43.6′ W CORE LENGTH: 563 CM

LITHOLOGIC DESCRIPTION

0-97 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2), slightly indurated between 9-31 cm; 8 cm layer of diatomaceous, glauconitic sand, olive gray (5Y 3/2), between 0-8 cm; 1 cm layer of glauconitic, sandy, diatomaceous ooze, light olive gray (5Y 5/2), between 8-9 cm; 3.5 cm layer of radiolarian, glauconitic sand, grayish olive (10Y 4/2), between 44-48 cm; 1 cm layer of radiolarian, muddy, diatomaceous ooze, light olive brown (5Y 5/6), between 76-78 cm; 32 mm sedimentary clast between 35-40 cm, composed of muddy, siliceous ooze, light olive (10Y 5/4); 30 mm sedimentary clast between 68-72 cm, composed of muddy, diatomaceous ooze, light olive brown (5Y 5/6); sedimentary clasts up to 20 mm common between 80-97 cm, composed of muddy, diatomaceous ooze, light olive brown (5Y 5/6); fine to medium pebbles common between 0-10 cm; gradational contact.

smear slides:	18 cm	56 cm
Quartz	14	17
Feldspar	<<1	1
Mica	-	<<1
Heavy minerals	<1	<1
Clay	26	14
Volcanic glass	1	<1
Glauconite	3	4
Diatoms	42	55
Radiolarians	14	9
Sponge spicules	<1	<1
Silicoflagellates	<<1	<<1

97-178 cm: Layers of muddy, diatomaceous ooze, light olive gray (5Y 5/2), interbedded with layers of sandy, glauconitic, siliceous ooze, olive gray (5Y 3/2); lenses of diatomaceous ooze, dusky yellow (5Y 6/4), between 163-165 cm (12 mm) and 165-167 cm (18 mm); 13 mm sedimentary clast between 148-150 cm, composed of muddy, diatomaceous ooze, light olive brown (5Y 5/6); sharp, irregular, bioturbated contact.

smear slides:	123 cm	152 cm
Quartz	28	24
Feldspar	<1	-
Heavy minerals	1	2
Clay	13	6
Volcanic glass	<1	1
Glauconite	8	16
Diatoms	42	27
Radiolarians	7	21
Sponge spicules	1	3
Silicoflagellates	<1	-

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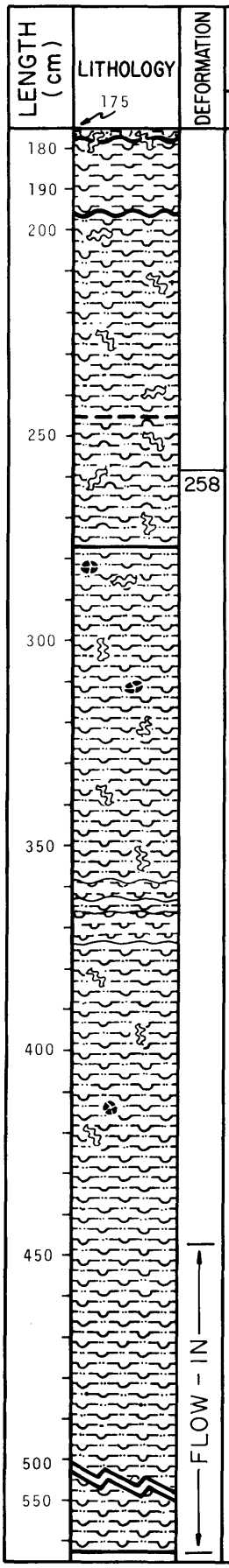
Logged by: Bergen, Harwood, Humphreys, Graves

ISLAS ORCADAS PC 1678-22



LATITUDE: 50°31.1′ S
LONGITUDE: 46°43.6′ W
WATER DEPTH: 2420 M, 1323 FM
CORE LENGTH: 563 CM

LITHOLOGIC DESCRIPTION

178-196 cm: Diatomaceous ooze, pale olive (10Y 6/2); discontinuous stringers of glauconitic, muddy, diatomaceous ooze, light olive gray (5Y 5/2), common between 189-196 cm; stringers of pure, diatomaceous ooze exhibiting cotton texture, white (N9), sparsely scattered between 189-196 cm; sharp, irregular contact.

smear slide: 185 cm

Quartz	7
Feldspar	<1
Heavy minerals	<<1
Clay	4
Volcanic glass	<1
Glauconite	<1
Diatoms	86
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<<1

196-245 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); zone of higher diatom content between 201-212 cm; slightly bioturbated throughout; gradational contact.

smear slide: 244 cm

Quartz	17	Micro-Mn nodules	<<1
Feldspar	<1	Diatoms	54
Heavy minerals	<1	Radiolarians	10
Clay	15	Sponge spicules	<1
Volcanic glass	<1	Silicoflagellates	<<1
Glauconite	4		

245-277 cm: Radiolarian, muddy, diatomaceous ooze, light olive gray (5Y 5/2); slightly bioturbated throughout; sharp contact.

smear slide: 266 cm

Quartz	25	Glauconite	6
Feldspar	<1	Micro-Mn nodules	<<1
Mica	<<1	Diatoms	42
Heavy minerals	<1	Radiolarians	16
Clay	10	Sponge spicules	<1
Volcanic glass	1	Silicoflagellates	<<1

277-563 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); irregular layers of diatomaceous ooze, light olive gray (5Y 5/2), between 358-363 cm (4.5 cm) and 366-374 cm (7 cm); 9 mm lamina of muddy, diatomaceous sand, light olive gray (5Y 5/2), between 279-281 cm; discontinuous laminae of diatomaceous ooze, light olive gray (5Y 5/2), sparsely scattered throughout; sedimentary clasts between 282-284 cm (14 mm), 311-313 cm (13 mm), and 414-416 cm (16 mm), composed of muddy, diatomaceous sand, olive gray (5Y 3/2); slightly bioturbated throughout; flow-in between 447-563 cm.

smear slide: 432 cm

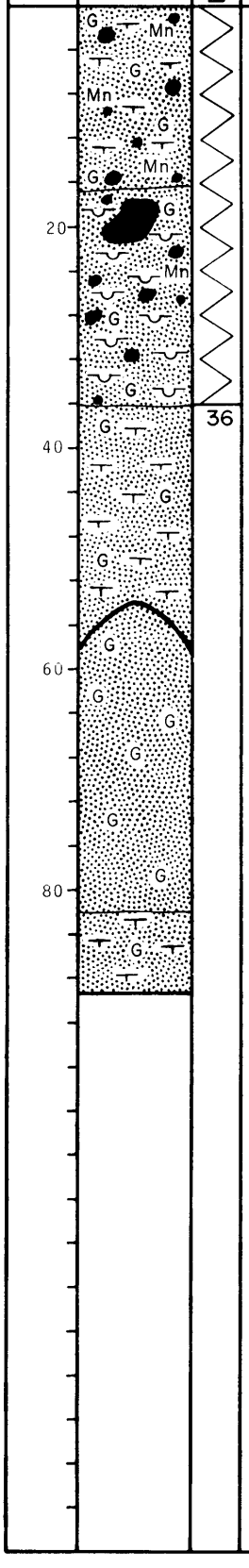
Quartz	17	Glauconite	1
Feldspar	<<1	Diatoms	61
Mica	<<1	Radiolarians	3
Heavy minerals	<<1	Sponge spicules	<<1
Clay	13	Silicoflagellates	4
Volcanic glass	1		

CORE CUTTER AND CATCHER (336 grams): sediment is the same as that of overlying unit.

Bottom topography: flat; due west of (less than 5 km), and near the base of, the western flank of the Maurice Ewing Bank.

Logged by: Bergen, Harwood, Humphreys, Graves

ISLAS ORCADAS PC 1678-23



LATITUDE: 50°42.0′ S
LONGITUDE: 47°03.3′ W
WATER DEPTH: 2520 M, 1378 FM
CORE LENGTH: 89 CM

LITHOLOGIC DESCRIPTION

NOTE: Deck-log states that sediment was "washed along the entire length of the liner occupying no more than 1/5 the diameter of the liner at any point". (The original liner was then cut into the present two sections.) "Both sections are washed and (apparently) lack any stratigraphic integrity."

0-57 cm: Glauconitic, foraminiferal sand, light olive gray (5Y 5/2); sand is fine, moderately sorted; layer between 17-36 cm composed of glauconitic, diatomaceous sand, light olive gray (5Y 5/2); very fine to medium pebbles common between 0-36 cm; coarse pebbles abundant between 22-33 cm, slightly coated with manganese oxides; 40 mm pebble (sandstone) between 18-22 cm, partially coated with manganese oxides; manganese oxide concentrations up to 10 mm common between 0-24 cm; 15 mm core cutter fragment between 25-27 cm; highly disturbed (washed) between 22-36 cm; moderately disturbed between 0-22 cm; sharp contact, convexing upward.

smear slides:	11 cm	(layer) 32 cm
Quartz	51	45
Feldspar	<1	-
Heavy minerals	3	2
Clay	3	5
Glauconite	14	12
Micro-Mn nodules	2	-
Carbonate unspecified	1	1
Foraminifera	18	6
Calcareous nannos	<<1	<<1
Diatoms	6	24
Radiolarians	2	4
Sponge spicules	<1	1
Silicoflagellates	<<1	<<1

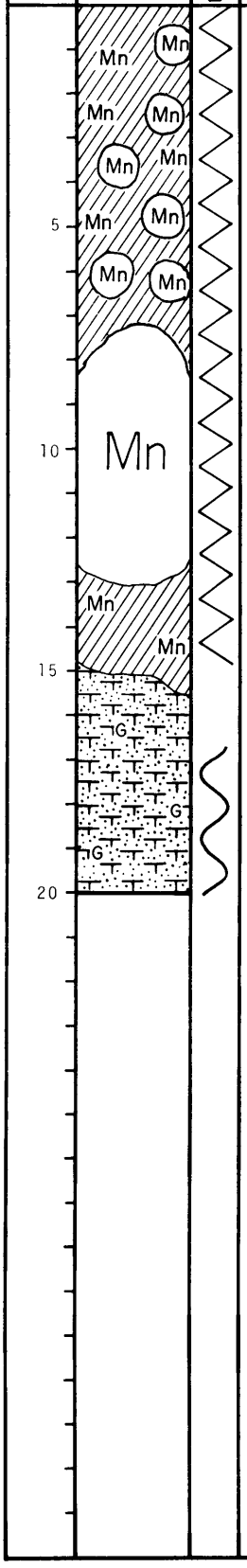
57-89 cm: Glauconitic sand, olive gray (5Y 4/1); sand size decreases from coarse (poorly sorted) at 57 cm to medium (moderately sorted) at 82 cm; foraminiferal content increases with depth; layer between 82-89 cm composed of glauconitic, foraminiferal sand, light olive gray (5Y 5/2); slightly washed along the side between 65-67 cm.

smear slide:	66 cm
Quartz	68
Feldspar	<1
Heavy minerals	5
Clay	<1
Rock fragments	3
Glauconite	17
Micro-Mn nodules	<1
Carbonate unspecified	<1
Foraminifera	4
Diatoms	1
Radiolarians	2
Sponge spicules	<1

Bottom topography: very gently sloping; west of the base of the western flank of the Maurice Ewing Bank.

Logged by: Eggers, Harwood

ISLAS ORCADAS PC 1678-24



LATITUDE: 50°45.1′ S **WATER DEPTH:** 2505 M, 1370 FM

LONGITUDE: 47°14.2′ W **CORE LENGTH:** 20 CM

LITHOLOGIC DESCRIPTION

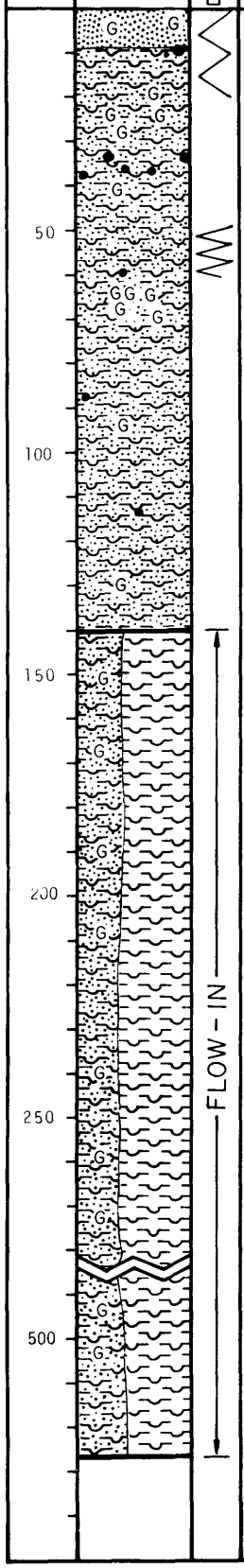
0-20 cm: Manganese pavement, brownish black (5YR 2/1); 57 mm manganese nodule between 7-13 cm; manganese nodules, having an average diameter of 10 mm, abundant between 0-13 cm; layer between 15-20 cm composed of glauconitic, sandy, foraminiferal ooze, light olive gray (5Y 5/2); highly disturbed (washed) between 0-15 cm; slightly disturbed between 17-20 cm.

smear slide:	(layer) 17 cm
Quartz	32
Feldspar	<1
Heavy minerals	2
Rock fragments	<1
Glauconite	12
Carbonate unspecified	5
Foraminifera	43
Calcareous nannos	<<1
Diatoms	1
Radiolarians	4
Sponge spicules	1

Bottom topography: very gently sloping; southwest of the western flank of the Maurice Ewing Bank.

Logged by: Graves

ISLAS ORCADAS PC 1678-25



LATITUDE: 50°52.6′ S **WATER DEPTH:** 2573 M, 1407 FM

LONGITUDE: 47°26.5′ W **CORE LENGTH:** 527 CM

LITHOLOGIC DESCRIPTION

0-140 cm: Glauconitic, sandy, diatomaceous ooze, light olive brown (5Y 5/6); partially lithified and fractured between 50-61 cm; moderately indurated and fractured between 38-41 cm; moderately to highly indurated between 80-140 cm, and slightly indurated between 61-80 cm; zones of higher glauconite content between 27-32 cm and 63-74 cm; zone of higher radiolarian content between 112-117 cm; layer of glauconitic sand, light olive gray (5Y 5/2), between 0-9 cm; 23 mm subrounded pebble between 9-12 cm; concentration of subrounded pebbles up to 11 mm between 34-38 cm; fine pebbles sparsely scattered throughout; highly disturbed between 50-61 cm; moderately disturbed (washed) between 0-20 cm; sharp contact.

smear slides:	(layer) 3 cm	15 cm	68 cm
Quartz	30	32	18
Feldspar	<1	<1	-
Mica	-	-	<<1
Heavy minerals	1	2	2
Clay	6	4	5
Volcanic glass	<1	<1	1
Rock fragments	1	-	<1
Glauconite	33	13	12
Foraminifera	8	-	-
Diatoms	9	37	53
Radiolarians	11	10	8
Sponge spicules	1	2	1
Silicoflagellates	-	<1	<1

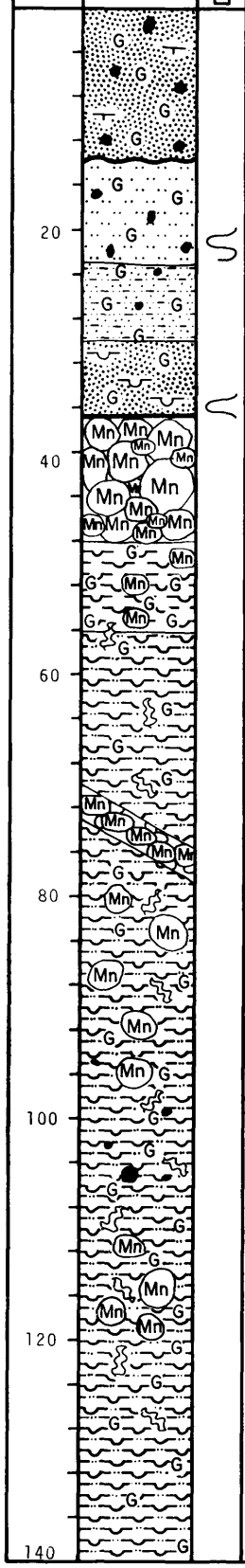
140-527 cm: Diatomaceous ooze, dusky yellow (5Y 6/4), and glauconitic, sandy, diatomaceous ooze, yellowish gray (5Y 7/2); flow-in between 140-527 cm.

CORE CUTTER AND CATCHER (163 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: flat; on the Falkland (Malvinas) Plateau, 15-20 km west of the Barker Ridge, and west of the southwestern flank of the Maurice Ewing Bank.

Logged by: Graves, Harwood

ISLAS ORCADAS PC 1678-26



LATITUDE: 51°18.6′ S
LONGITUDE: 46°59.2′ W
WATER DEPTH: 2703 M, 1478 FM
CORE LENGTH: 230 CM

LITHOLOGIC DESCRIPTION

0-14 cm: Foraminiferal, glauconitic sand, moderate olive brown (5Y 4/4); sand is fine, moderately sorted; fine to coarse pebbles common throughout; moderately washed along the side; sharp, irregular contact.

smear slide:	12 cm
Quartz	38
Feldspar	<1
Heavy minerals	3
Clay	8
Volcanic glass	1
Glauconite	23
Carbonate unspecified	1
Foraminifera	17
Calcareous nannos	<<1
Diatoms	5
Radiolarians	3
Sponge spicules	1
Silicoflagellates	<<1

14-37 cm: Glauconitic, muddy sand, light olive brown (5Y 5/6); sand is medium, moderately sorted; 7 cm layer of glauconitic, sandy mud, dusky yellow (5Y 6/4), between 23-30 cm; 7 cm layer of glauconitic, diatomaceous sand, dusky yellow (5Y 6/4), between 30-37 cm; fine to coarse pebbles common between 14-23 cm; fine pebbles sparsely scattered between 23-28 cm; slightly disturbed between 20-23 cm and 35-37 cm; slightly washed along the side between 14-20 cm and 23-35 cm; sharp contact.

smear slides:	17 cm	(layer) 26 cm	(layer) 33 cm
Quartz	40	40	50
Feldspar	1	<1	1
Heavy minerals	2	2	2
Clay	26	42	9
Volcanic glass	2	1	<1
Glauconite	20	10	12
Diatoms	4	1	22
Radiolarians	3	3	3
Sponge spicules	2	1	1

37-230 cm: Glauconitic, muddy, diatomaceous ooze, light olive brown (5Y 5/6); patches of manganese oxide staining common between 56-70 cm and 160-177 cm, sparsely scattered between 123-138 cm and 192-216 cm; layers of manganese nodules up to 47 mm between 37-48 cm, up to 10 mm between 145-150 cm, and up to 18 mm between 218-230 cm; 3 cm inclined layer of manganese nodules up to 15 mm between 70-73 cm on one side, and 75-78 cm on the other; 8 cm layer of glauconitic, diatomaceous ooze, yellowish gray (5Y 7/2), between 48-56 cm; sedimentary clasts up to 14 mm composed of glauconitic mud, dusky yellow (5Y 6/4), soft, sparsely scattered between 158-191 cm; 100 mm sedimentary clast composed of glauconitic mud, dusky yellow (5Y 6/4), soft, between 207-217 cm; manganese nodules up to 26 mm abundant between 78-97 cm and 110-120 cm, up to 4 mm common between 48-56 cm, up to 10 mm common between 150-160 cm, and up to 12 mm common between 209-216 cm; 5 mm manganese nodule between 205-206 cm; 12 mm subangular pebble between 104-106 cm; very fine to fine pebbles sparsely scattered between 94-106 cm; moderately bioturbated between 55-128 cm; highly disturbed between 207-230 cm; moderately disturbed between 150-176 cm; slightly washed along the side between 110-150 cm and 176-207 cm.

(see next page for smear slide data)

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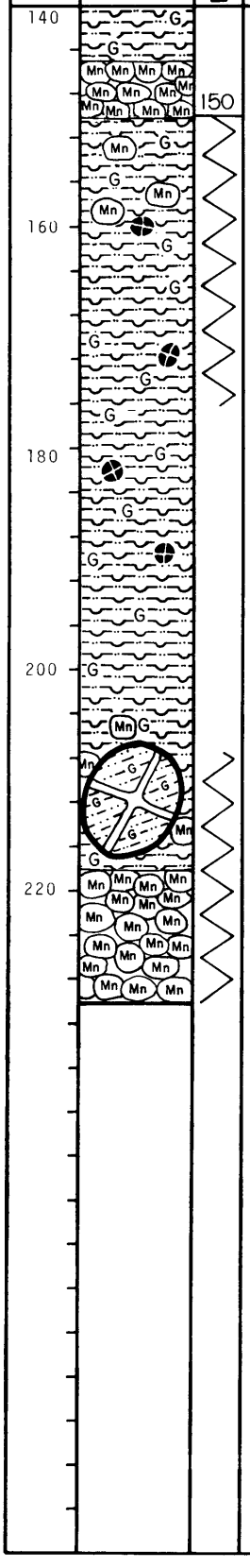
Logged by: Graves, Harwood, Kaharoeddin

ISLAS ORCADAS PC 1678-26



LATITUDE: 51°18.6′ S
LONGITUDE: 46°59.2′ W
WATER DEPTH: 2703 M, 1478 FM
CORE LENGTH: 230 CM

LITHOLOGIC DESCRIPTION

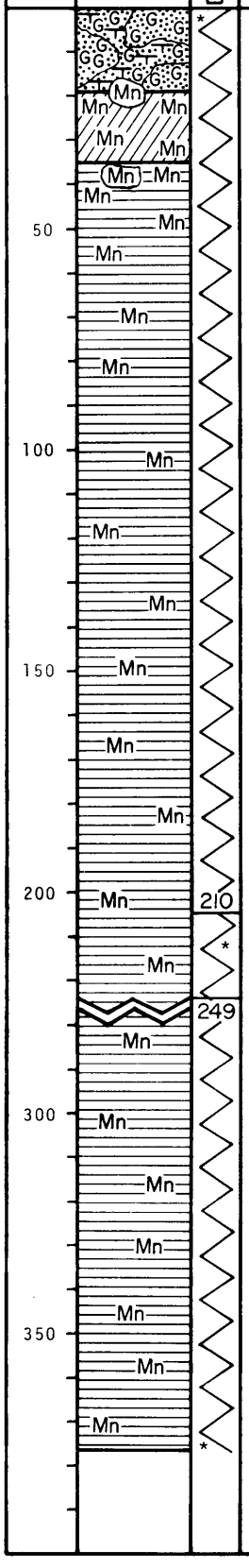
smear slides:	52 cm	135 cm	(sed. clast) 158 cm	184 cm
Quartz	15	18	4	25
Feldspar	<1	1	<1	<1
Heavy minerals	-	2	1	1
Clay	10	8	37	13
Volcanic glass	4	2	<1	2
Glauconite	11	10	38	10
Micro-Mn nodules	-	1	<1	1
Barite	-	-	13	-
Diatoms	56	54	2	45
Radiolarians	3	3	2	2
Sponge spicules	1	1	3	1
Silicoflagellates	<<1	-	-	-

CORE CATCHER (101 grams): Medium pebbles, coated with manganese oxides, and manganese nodules up to 25 mm, in a matrix composed of glauconitic, muddy, diatomaceous ooze, light olive brown (5Y 5/6).

Bottom topography: flat; on the Falkland (Malvinas) Plateau, approximately 20 km southwest of the Barker Ridge, and southwest of the Maurice Ewing Bank.

Logged by: Graves, Harwood, Kaharoeddin

ISLAS ORCADAS PC 1678-27



LATITUDE: 51°22.4′ S
LONGITUDE: 45°43.8′ W
WATER DEPTH: 2264 M, 1238 FM
CORE LENGTH: 377 CM

LITHOLOGIC DESCRIPTION

0-19 cm: Intermixed glauconitic, foraminiferal sand, yellowish gray (5Y 7/2) and glauconitic sand, moderate olive brown (5Y 4/4), moderately compacted; both lithologies are of very fine to very coarse sand, poorly sorted; highly disturbed (washed); sharp contact.

smear slides:	5 cm	7 cm
Quartz	65	46
Feldspar	<1	<1
Mica	<<1	-
Heavy minerals	2	2
Clay	9	1
Volcanic glass	2	<1
Rock fragments	-	6
Glauconite	19	15
Carbonate unspecified	-	<1
Foraminifera	<1	28
Diatoms	2	<1
Radiolarians	<1	2
Sponge spicules	1	<1

19-35 cm: Manganese pavement, brownish black (5YR 2/1); 40 mm manganese nodule between 18-22 cm; moderately disturbed; sharp contact.

35-377 cm: Pelagic clay, yellowish gray (5Y 7/2), changing gradationally at 95 cm to dusky yellow (5Y 6/4), and then gradationally at 210 cm to light olive gray (5Y 5/2); micro-manganese nodules common throughout unit; moderately stained with manganese oxides between 35-40 cm; 39 mm manganese nodule between 36-40 cm; moderately disturbed (washed) between 35-104 cm; highly disturbed (washed) between 104-377 cm.

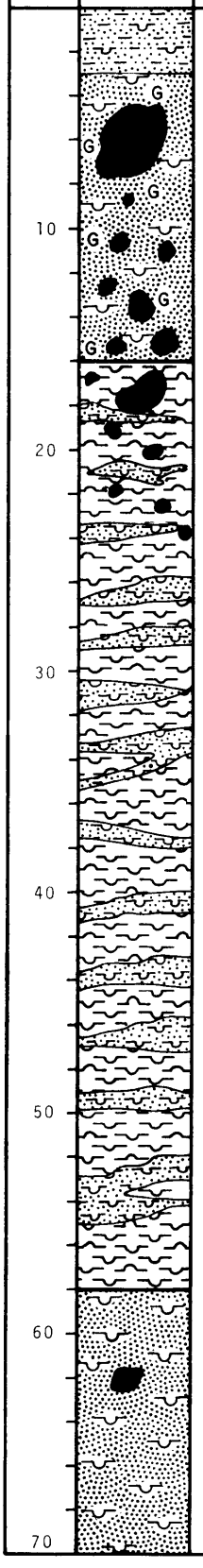
smear slides:	53 cm	266 cm
Quartz	9	8
Feldspar	<1	<<1
Heavy minerals	<1	<1
Clay	85	82
Glauconite	<1	2
Micro-Mn nodules	1	4
Zeolites	2	1
Barite	3	3

Bottom topography: gently sloping; cored on the apex of a promontory rising approximately 347 meters, and located 11-15 km south of the southwestern flank of the Maurice Ewing Bank.

*NOTE: Sediment between 0-1 cm, 210-249 cm, and 376-377 cm is bagged.

Logged by: Humphreys, Graves, Eggers

ISLAS ORCADAS PC 1678-28



LATITUDE: 51°14.2′ S
LONGITUDE: 45°43.4′ W
WATER DEPTH: 2557 M, 1398 FM
CORE LENGTH: 196 CM

LITHOLOGIC DESCRIPTION

0-16 cm: Glauconitic, diatomaceous sand, light olive gray (5Y 5/2); sand is fine, well sorted; 3 cm layer of diatomaceous, sandy mud, light olive gray (5Y 6/1), between 0-3 cm; 38 mm rounded pebble between 4-8 cm; fine to coarse pebbles abundant between 8-16 cm; sharp contact.

smear slides:	(layer) 2 cm	7 cm
Quartz	26	44
Feldspar	< 1	<1
Heavy minerals	2	3
Clay	15	5
Volcanic glass	1	4
Glauconite	3	10
Carbonate unspecified	7	<<1
Foraminifera	5	<1
Calcareous nannos	<1	-
Diatoms	35	25
Radiolarians	3	8
Sponge spicules	3	1
Silicoflagellates	<1	-

16-58 cm: Radiolarian, diatomaceous ooze, dusky yellow (5Y 6/4), with abundant stringers of sandy diatomaceous ooze; 23 mm rounded pebble between 16-19 cm; medium pebbles common between 16-24 cm; sharp contact.

smear slide:	43 cm
Quartz	24
Feldspar	<1
Heavy minerals	1
Clay	5
Volcanic glass	2
Glauconite	2
Diatoms	50
Radiolarians	15
Sponge spicules	1
Silicoflagellates	<1

58-74 cm: Diatomaceous sand, light olive gray (5Y 5/2); sand is very fine, and well sorted; 16 mm rounded pebble between 61-63 cm; sharp contact.
NOTE: Smear slide is slightly biased toward the fine fraction.

smear slide:	63 cm
Quartz	35
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	12
Volcanic glass	1
Glauconite	9
Diatoms	30
Radiolarians	10
Sponge spicules	1
Silicoflagellates	<1

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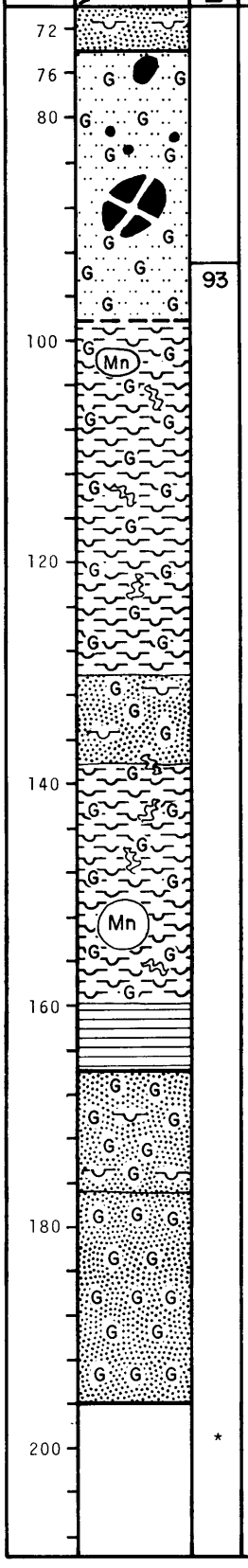
Logged by: Graves, Kaharoeddin, Eggers, Humphreys

ISLAS ORCADAS PC 1678-28



LATITUDE: 51°14.2' S
LONGITUDE: 45°43.4' W
WATER DEPTH: 2557 M, 1398 FM
CORE LENGTH: 196 CM

LITHOLOGIC DESCRIPTION

74-98 cm: Glauconitic, muddy sand, light olive brown (5Y 5/6); sand is fine and well sorted; slightly indurated; 60 mm sedimentary clast composed of glauconitic, sandy, diatomaceous ooze, light olive brown (5Y 5/6), between 85-91 cm, moderately indurated; 21 mm rounded pebble between 74-77 cm; medium pebbles common between 80-84 cm; gradational contact.

smear slide:	83 cm
Quartz	40
Feldspar	<1
Heavy minerals	1
Clay	20
Volcanic glass	1
Glauconite	25
Diatoms	10
Radiolarians	2
Sponge spicules	1

98-166 cm: Glauconitic, diatomaceous ooze, moderate olive brown (5Y 4/4); highly laminated with glauconite between 107-166 cm; 8 cm layer of diatomaceous, glauconitic sand, olive gray (5Y 3/2), between 130-138 cm; 6 cm layer of clay, yellowish gray (5Y 7/2), between 160-166 cm; manganese nodules between 101-103 cm (18 mm, broken), and between 150-155 cm (50 mm); moderately bioturbated; sharp contact.

smear slides:	114 cm	(layer) 163 cm
Quartz	16	12
Feldspar	<1	<1
Heavy minerals	<1	<1
Clay	2	66
Volcanic glass	2	2
Glauconite	30	7
Barite	-	2
Diatoms	45	8
Radiolarians	3	1
Sponge spicules	2	2
Silicoflagellates	<1	<1

166-196 cm: Glauconitic sand, light olive gray (5Y 5/2); quartz particles are very fine and well sorted; glauconites are fine and well sorted; 11 cm layer of diatomaceous, glauconitic sand, moderate olive brown (5Y 4/4), moderately laminated, between 166-177 cm; cross-layering of glauconite common between 177-196 cm.

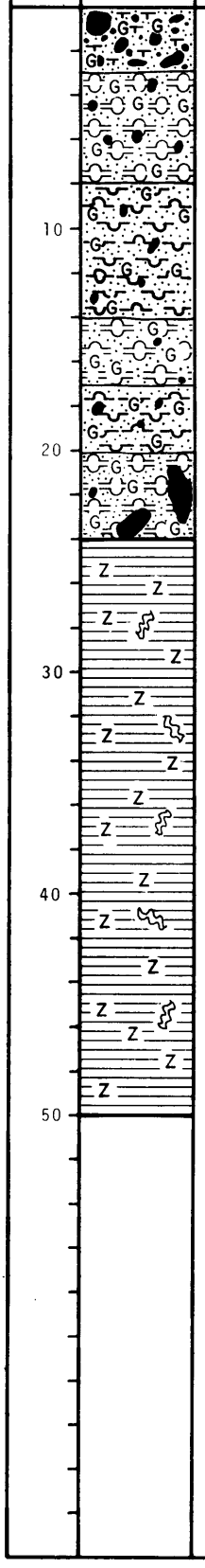
smear slide:	188 cm
Quartz	25
Feldspar	<1
Heavy minerals	2
Clay	1
Volcanic glass	1
Glauconite	71
Diatoms	<<1
Radiolarians	<1
Sponge spicules	<<1

Bottom topography: gently sloping; at the base of the southern flank of the western portion of the Maurice Ewing Bank.

*NOTE: The third and lowermost section of this core was lost overboard during a storm, and was estimated to be approximately 300 cm in length. Sediment which had fallen from the bottom of the lost core liner section onto the deck of the ship was placed in a plastic bag. The amount of this sediment is estimated to be equivalent to approximately 9 cm of core length; thus, the bagged sediment represents a sample depth of approximately 490-500 cm below the core top. Deck-log notations indicate that the sediment in the lost section appeared to be similar to that of the bagged sediment, and that minor contamination of the bagged sediment with "deck mud" is possible. The bagged sediment consists of glauconitic sand, light olive gray (5Y 5/2), and contains radiolarians.

Logged by: Graves, Kaharoeddin, Eggers, Humphreys

ISLAS ORCADAS PC 1678-29



LATITUDE: 51°00.3′ S WATER DEPTH: 2182 M, 1193 FM

LONGITUDE: 45°41.9′ W CORE LENGTH: 50 CM

LITHOLOGIC DESCRIPTION

0-24 cm: Glauconitic, sandy, siliceous ooze, light olive brown (5Y 5/6); unit is moderately indurated; 3 cm layer of foraminiferal, pebbly sand, light olive gray (5Y 5/2), between 0-3 cm; layers of sandy, radiolarian, diatomaceous ooze, light olive brown (5Y 5/6), highly indurated, between 8-14 cm and 17-20 cm; glauconite abundant throughout these layers; 15 mm rounded quartz pebble between 22-24 cm; 32 mm angular pebble between 20-24 cm; very fine to medium pebbles sparsely scattered throughout; sharp contact.

smear slides:	(layer) 1 cm	8 cm	(layer) 12 cm	16 cm
Quartz	40	30	17	30
Feldspar	1	<1	-	<1
Heavy minerals	2	3	2	2
Clay	7	10	12	8
Volcanic glass	1	<1	<1	1
Glauconite	17	16	11	23
Carbonate unspecified	2	-	-	-
Foraminifera	16	-	-	-
Diatoms	8	18	38	15
Radiolarians	5	22	20	20
Sponge spicules	1	1	<1	1
Silicoflagellates	<<1	<<1	-	<<1

24-50 cm: Zeolitic clay, dusky yellow (5Y 6/4), moderately indurated; moderately bioturbated throughout.

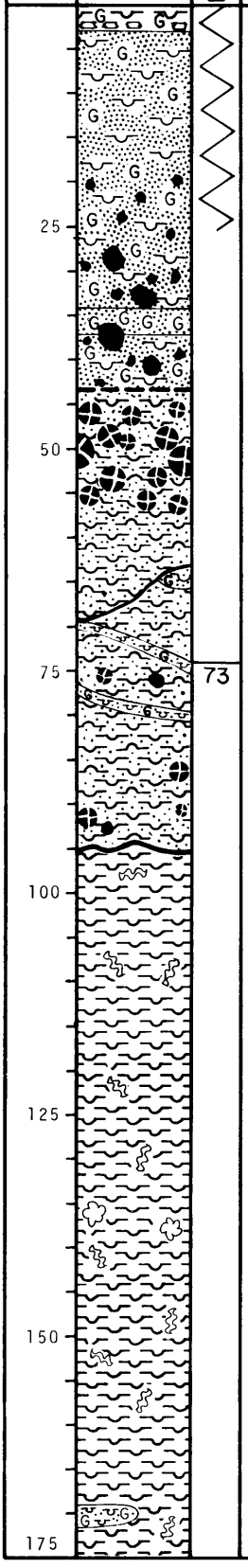
smear slide:	35 cm
Quartz	5
Heavy minerals	<1
Clay	79
Volcanic glass	<<1
Zeolite	16

Bottom topography: moderately sloping; on the western portion of the southern flank of the Maurice Ewing Bank.

*NOTE: Sediment between 49-50 cm is bagged.

Logged by: Harwood, Graves, Humphreys

ISLAS ORCADAS PC 1678-30



LATITUDE: 50°56.6' S WATER DEPTH: 2012 M, 1100 FM
LONGITUDE: 45°41.6' W CORE LENGTH: 372 CM

LITHOLOGIC DESCRIPTION

0-43 cm: Diatomaceous, glauconitic sand, light olive gray (5Y 5/2); sand is fine, moderately to poorly sorted; 3 cm layer of glauconitic, diatomaceous, calcareous ooze, yellowish gray (5Y 7/2), between 0-3 cm; 3 cm layer of glauconitic sand, olive gray (5Y 3/2), between 34-37 cm; fine, subangular pebbles common between 20-43 cm; subangular pebbles between 28-31 cm (27 mm), 31-34 cm (21 mm), and 36-39 cm (29 mm); 24 mm rounded pebble between 39-42 cm; moderately disturbed (washed) between 0-26 cm; gradational contact.

smear slides:	6 cm	27 cm
Quartz	49	49
Feldspar	1	<1
Heavy minerals	1	1
Clay	1	5
Volcanic glass	<1	2
Glauconite	17	18
Carbonate unspecified	1	-
Foraminifera	3	-
Calcareous nannos	<<1	-
Diatoms	20	16
Radiolarians	6	8
Sponge spicules	1	1
Silicoflagellates	<<1	-

43-67 cm: Sandy, radiolarian, diatomaceous ooze, light olive brown (5Y 5/6); sedimentary clasts, up to 19 mm, abundant between 43-58 cm, composed of quartz and chert, light olive brown (5Y 5/6), moderately indurated; unit highly indurated between 51-58 cm; sharp, irregular, inclined contact.

smear slide:	58 cm
Quartz	33
Feldspar	<1
Heavy minerals	<1
Clay	5
Volcanic glass	<1
Glauconite	7
Diatoms	38
Radiolarians	16
Sponge spicules	1

67-95 cm: Sandy, radiolarian, diatomaceous ooze, light olive gray (5Y 5/2); 3 cm lense of glauconitic, diatomaceous sand between 63-66 cm; inclined laminae of glauconitic, diatomaceous sand between 68-72 cm (1 cm), and 77-79 cm (1 cm); sedimentary clasts between 74-76 cm (17 mm), 85-87 cm (11 mm), and 91-93 cm (18 mm), composed of muddy, diatomaceous ooze, light olive brown (5Y 5/6), moderately indurated; 8 mm sedimentary clast between 90-91 cm, composed of radiolarian, diatomaceous ooze, dusky yellow (5Y 6/4), soft; pebbles between 75-77 cm (19 mm), and 93-94 cm (11 mm); slightly washed along the side between 67-78 cm; sharp, irregular contact. NOTE: Smear slide biased toward diatoms.

smear slide:	71 cm		
Quartz	38	Glauconite	8
Feldspar	<1	Diatoms	39
Heavy minerals	<1	Radiolarians	10
Clay	5	Sponge spicules	<1
Volcanic glass	<<1	Silicoflagellates	<1

95-210 cm: Diatomaceous ooze, light olive brown (5Y 5/6), abruptly changing at 98 cm to dusky yellow (5Y 6/4), gradationally changing at 178 cm to pale olive (10Y 6/2), and mottled with grayish yellow (5Y 8/4) between 135-138 cm; lenses of glauconitic, sandy, diatomaceous ooze between 169-171 cm (1 cm), and 187-190 cm (2 cm); 12 mm sedimentary clast between 202-204 cm composed of diatomaceous ooze, light olive brown (5Y 5/6), contains volcanic ash, soft; moderately bioturbated throughout; glauconitic, sandy, siliceous ooze from overlying unit dragged in along the side between 98-107 cm; gradational contact.

smear slides:	96 cm	193 cm		96 cm	193 cm
Quartz	3	3	Glauconite	3	-
Feldspar	<1	<1	Diatoms	81	96
Heavy minerals	<1	<<1	Radiolarians	5	1
Clay	8	<1	Sponge spicules	<1	<<1
Volcanic glass	<1	<1	Silicoflagellates	-	<<1

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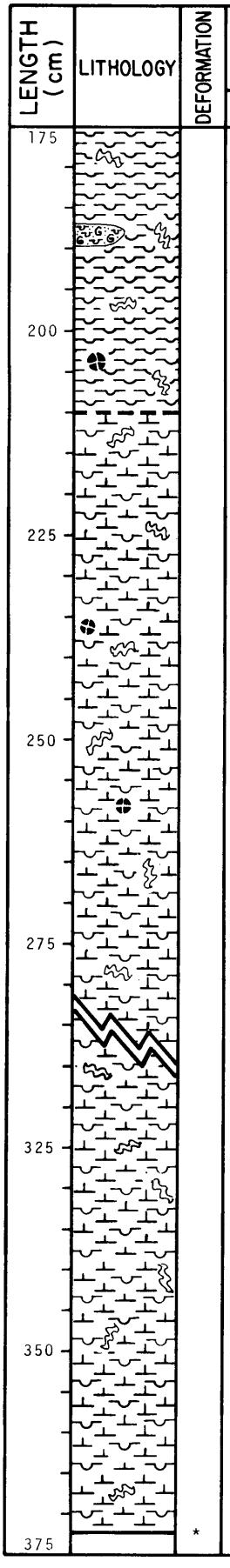
Logged by: Humphreys, Harwood, Eggers, Kaharoeddin

ISLAS ORCADAS PC 1678-30



LATITUDE: 50°56.6′ S
LONGITUDE: 45°41.6′ W
WATER DEPTH: 2012 M, 1100 FM
CORE LENGTH: 372 CM

LITHOLOGIC DESCRIPTION

210-372 cm: Diatomaceous-nannofossil ooze, yellowish gray (5Y 7/2), gradationally changing to light olive gray (5Y 6/1) at 260 cm; zone of higher diatom content between 270-332 cm; sedimentary clasts between 235-237 cm (25 mm) and 257-258 cm (10 mm) composed of sandy, glauconitic, siliceous ooze, moderate olive brown (5Y 4/4), soft; moderately bioturbated.

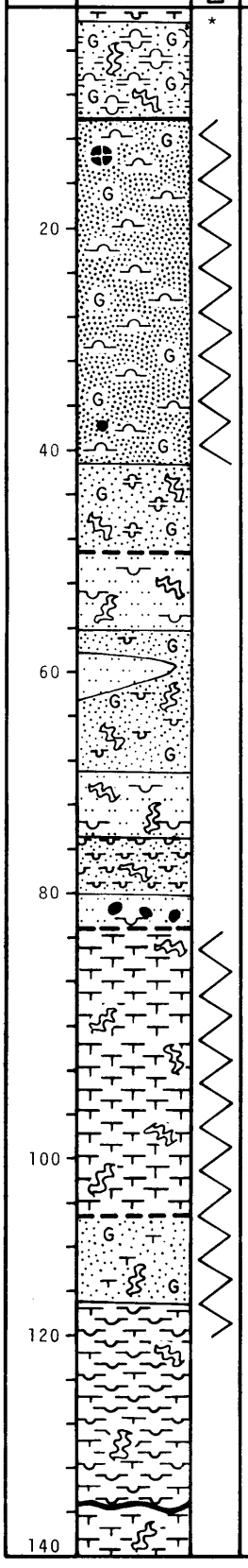
smear slides:	244 cm	364 cm
Quartz	<1	<1
Feldspar	-	<<1
Heavy minerals	<<1	<<1
Volcanic glass	<1	-
Carbonate unspecified	-	2
Foraminifera	<1	<<1
Calcareous nannos	56	58
Diatoms	43	39
Radiolarians	1	1
Sponge spicules	-	<<1
Silicoflagellates	<<1	<<1

Bottom topography: gently sloping; on the western portion of the southern flank of the Maurice Ewing Bank.

*NOTE: Sediment between 371-372 cm is bagged.

Logged by: Humphreys, Harwood, Eggers, Kaharoeddin

ISLAS ORCADAS PC 1678-31



LATITUDE: 49°53.7′ S
LONGITUDE: 46°00.6′ W
WATER DEPTH: 3091 M, 1690 FM
CORE LENGTH: 570 CM

LITHOLOGIC DESCRIPTION

0-10 cm: Glauconitic, sandy, siliceous ooze, light olive gray (5Y 5/2); layer of diatomaceous, foraminiferal ooze, light olive gray (5Y 6/1), between 0-1 cm; slightly bioturbated throughout; slightly washed along the side; sharp contact.

smear slide:	6 cm
Quartz	26
Feldspar	<<1
Heavy minerals	1
Clay	3
Volcanic glass	1
Glauconite	13
Carbonate unspecified	<<1
Foraminifera	<1
Diatoms	24
Radiolarians	32
Sponge spicules	<1
Silicoflagellates	<<1

10-49 cm: Glauconitic, radiolarian sand, olive gray (5Y 3/2), gradationally changing at 41 cm to light olive gray (5Y 5/2); sand is fine and moderately sorted; layer of glauconitic, radiolarian-diatomaceous sand, moderate olive brown (5Y 4/4), between 41-49 cm; 10 mm sedimentary clast between 13-14 cm composed of diatomaceous mud, light olive gray (5Y 5/2), slightly compacted; 6 mm subangular pebble between 37-38 cm; slightly bioturbated between 41-49 cm; moderately disturbed (washed) between 10-41 cm; slightly washed along the side between 41-49 cm; gradational contact. NOTE: Smear slide is biased toward the fine fraction.

smear slide:	36 cm
Quartz	45
Feldspar	<1
Heavy minerals	1
Clay	17
Volcanic glass	<1
Glauconite	14
Micro-Mn nodules	<1
Diatoms	8
Radiolarians	15
Sponge spicules	<1

49-83 cm: Diatomaceous, muddy sand, olive gray (5Y 3/2); sand is fine and moderately sorted; layer of glauconitic, diatomaceous sand between 56-69 cm, light olive gray (5Y 5/2); lens of muddy sand between 58-62 cm, light olive gray (5Y 5/2); layer of sandy, diatomaceous ooze between 75-80 cm, light olive gray (5Y 5/2); subrounded pebbles between 80-82 cm (12 mm), 81-82 cm (7 mm), and 81-83 cm (14 mm); moderately bioturbated throughout; slightly washed along the side between 49-71 cm; gradational contact.

smear slide:	55 cm
Quartz	17
Feldspar	<1
Heavy minerals	<1
Clay	29
Volcanic glass	<1
Glauconite	6
Diatoms	40
Radiolarians	8
Sponge spicules	<1

83-109 cm: Foraminiferal ooze, light olive gray (5Y 6/1); moderately bioturbated throughout; moderately disturbed throughout; gradational contact.

smear slide:	93 cm		
Quartz	4	Foraminifera	55
Feldspar	<1	Calcareous nannos	<<1
Heavy minerals	<<1	Diatoms	13
Clay	4	Radiolarians	3
Glauconite	<1	Sponge spicules	<1
Carbonate unspecified	21	Silicoflagellates	<<1

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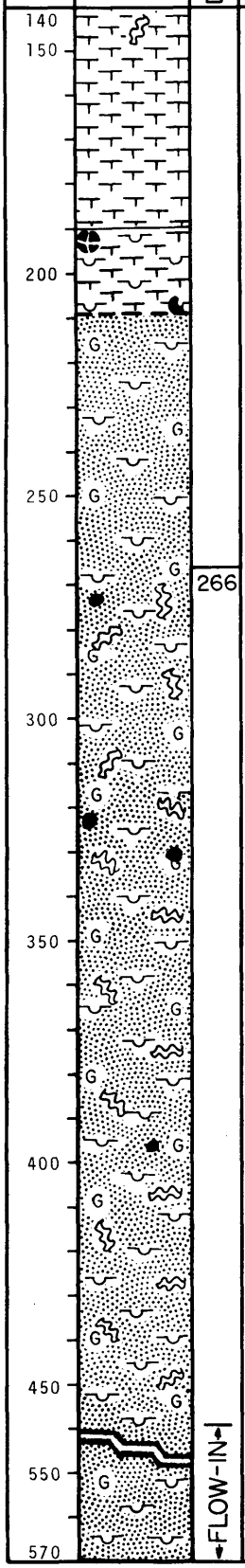
Logged by: Humphreys, Eggers, Harwood, Graves

ISLAS ORCADAS PC 1678-31



LATITUDE: 49°53.7′ S
LONGITUDE: 46°00.6′ W
WATER DEPTH: 3091 M, 1690 FM
CORE LENGTH: 570 CM

LITHOLOGIC DESCRIPTION

109-135 cm: Foraminiferal, diatomaceous ooze, light olive gray (5Y 5/2); layer of glauconitic, foraminiferal sand between 109-117 cm, olive gray (5Y 3/2); slightly bioturbated throughout; moderately disturbed (washed)between 109-120 cm; slightly washed along the side between 120-135 cm; sharp, irregular contact.

smear slide:	128 cm
Quartz	6
Feldspar	<<1
Mica	<<1
Heavy minerals	<1
Clay	3
Volcanic glass	<1
Glauconite	2
Carbonate unspecified	6
Foraminifera	25
Calcareous nannos	<<1
Diatoms	56
Radiolarians	2
Sponge spicules	<1
Silicoflagellates	<1

135-209 cm: Foraminiferal ooze, light olive gray (5Y 5/2), gradationally changing to yellowish gray (5Y 8/1) at 146 cm; zone of higher diatom content between 135-146 cm; layer of diatomaceous, foraminiferal ooze, light olive gray (5Y 5/2), between 190-209 cm; 10 mm sedimentary clast between 190-191 cm, composed of diatomaceous, marly, calcareous ooze, olive gray (5Y 4/1), soft; 20 mm angular pebble between 207-209 cm; slightly bioturbated between 135-150 cm; gradational contact.

smear slides:	139 cm	(layer) 199 cm
Quartz	7	5
Feldspar	-	<1
Heavy minerals	1	2
Clay	6	5
Volcanic glass	<1	2
Glauconite	3	4
Carbonate unspecified	2	11
Foraminifera	65	39
Calcareous nannos	3	3
Diatoms	10	25
Radiolarians	3	3
Sponge spicules	<1	1
Silicoflagellates	-	<<1

209-570 cm: Glauconitic, diatomaceous sand, moderate olive brown (5Y 4/4), changing variably to light olive gray (5Y 5/2); sand is fine, and well to moderately sorted; 6 mm rounded pebble between 272-273 cm; angular pebbles between 321-324 cm (24 mm) and 329-331 cm (13 mm); 7 mm subrounded pebble between 395-396 cm; highly bioturbated between 270-460 cm; flow-in between 460-570 cm.

smear slides:	276 cm	364 cm
Quartz	47	40
Feldspar	1	<1
Mica	-	<<1
Heavy minerals	3	4
Clay	13	8
Volcanic glass	<1	3
Glauconite	11	12
Diatoms	15	27
Radiolarians	9	6
Sponge spicules	1	<1
Silicoflagellates	<<1	-

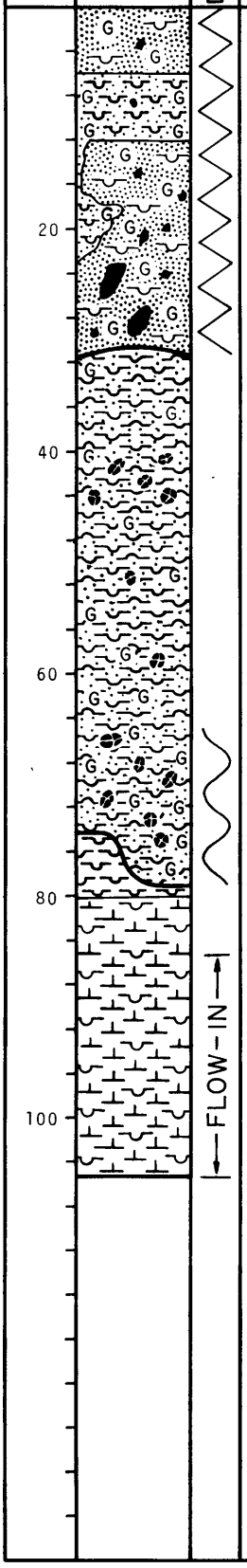
CORE CUTTER AND CATCHER (265 gm): sediment is the same as that of overlying unit; flow-in.

Bottom topography: flat; approximately 15 km north of the western portion of the Maurice Ewing Bank.

*NOTE: Sediment between 0-1 cm is bagged.

Logged by: Humphreys, Eggers, Harwood, Graves

ISLAS ORCADAS PC 1678-32



LATITUDE: 50°08.4' S
LONGITUDE: 46°00.1' W
WATER DEPTH: 2771 M, 1515 FM
CORE LENGTH: 105 CM

LITHOLOGIC DESCRIPTION

0-31 cm: Glauconitic, diatomaceous sand, moderate olive brown (5Y 4/4); sand is fine and poorly sorted; radiolarians abundant throughout; foraminifera sparsely scattered between 0-5 cm, 13-17 cm, and 22-31 cm; foraminifera abundant in a stringer, washed-in, between 2-6 cm; layer of glauconitic, sandy, diatomaceous ooze, light olive gray (5Y 5/2), between 6-12 cm, and also dragged-in and mixed with the main lithology between 17-23 cm; angular, green-schist pebbles between 23-26 cm (23 mm) and 27-30 cm (28 mm); pebbles between 17-18 cm (9 mm) and 20-22 cm (12 mm); very fine pebbles sparsely scattered throughout; unit moderately disturbed (washed); sharp contact, slightly convex upward.

smear slides:	(layer) 9 cm	16 cm
Quartz	35	45
Feldspar	1	2
Heavy minerals	1	4
Clay	3	4
Volcanic glass	1	<1
Rock fragments	-	<<1
Glauconite	6	15
Foraminifera	-	<<1
Diatoms	45	15
Radiolarians	8	13
Sponge spicules	<1	2
Silicoflagellates	<<1	<<1

31-79 cm: Sandy, radiolarian, diatomaceous ooze, light olive gray (5Y 5/2), abruptly changing to dusky yellow (5Y 6/4) between 39-47 cm; radiolarian and glauconite content increase with depth; glauconite abundant throughout; foraminifera sparsely scattered between 31-41 cm; sedimentary clasts up to 17 mm common between 40-45 cm, composed of diatomaceous, glauconitic sand, olive gray (5Y 3/2), moderately indurated; sedimentary clasts up to 15 mm abundant between 40-43 cm, sparsely scattered between 45-60 cm, composed of glauconitic, sandy, diatomaceous ooze, light olive brown (5Y 5/6), moderately indurated; sedimentary clasts up to 30 mm abundant between 65-76 cm, composed of mudstone and muddy, diatomaceous ooze, moderate olive brown (5Y 4/4) and olive gray (5Y 3/2), highly indurated; slightly disturbed between 65-79 cm; sharp, irregular, inclined contact between 74-79 cm.

smear slides:	49 cm	72 cm
Quartz	32	8
Feldspar	1	<1
Mica	-	<1
Heavy minerals	2	1
Clay	3	16
Volcanic glass	2	<1
Glauconite	7	20
Carbonate unspecified	3	-
Diatoms	35	36
Radiolarians	15	17
Sponge spicules	<1	2
Silicoflagellates	<1	<<1

79-105 cm: Diatomaceous, nannofossil ooze, yellowish gray (5Y 7/2); layer of diatomaceous ooze, very pale orange (10YR 8/2) between 74-80 cm; concentrations of glauconite in patches between 77-78 cm and 78-79 cm; abrupt change to flow-in at 85 cm.

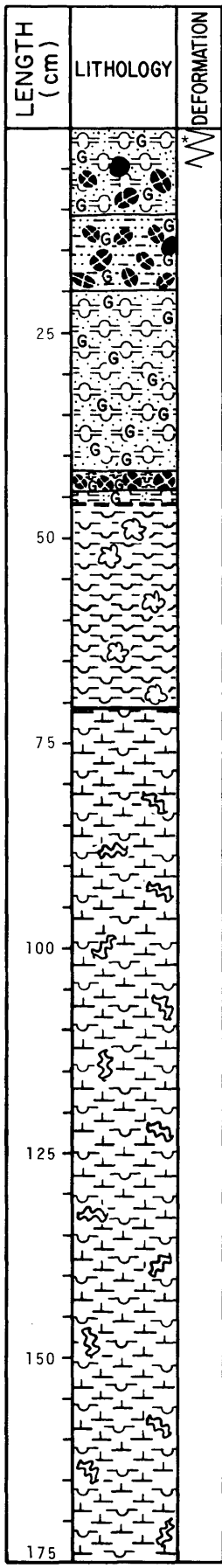
smear slides:	(layer) 79 cm	86 cm		(layer) 79 cm	86 cm
Quartz	<1	<1	Calcareous nannos	-	66
Feldspar	1	-	Diatoms	86	19
Clay	10	-	Radiolarians	3	12
Volcanic glass	-	<<1	Sponge spicules	<<1	<<1
Foraminifera	-	2	Silicoflagellates	<<1	1

CORE CUTTER AND CATCHER (370 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; near the base of the westernmost portion of the northern flank of the Maurice Ewing Bank.

Logged by: Kaharoeddin, Harwood, Eggers, Humphreys

ISLAS ORCADAS PC 1678-33



LATITUDE: 50°13.9' S
LONGITUDE: 45°59.9' W
WATER DEPTH: 2465 M, 1348 FM
CORE LENGTH: 509 CM

LITHOLOGIC DESCRIPTION

0-46 cm: Glauconitic, sandy, siliceous ooze, moderate olive brown (5Y 4/4), gradationally changing to light olive gray (5Y 5/2) between 37-46 cm; moderately indurated between 5-35 cm; zone of higher glauconite content between 37-42 cm; layer of highly indurated glauconitic mud, grayish olive (10Y 4/2) between 11-20 cm, containing abundant sedimentary clasts up to 20 mm; layer of moderately indurated glauconitic, siliceous ooze, moderate olive brown, (5Y 4/4) between 42-44 cm, containing abundant sedimentary clasts up to 5 mm; sedimentary clasts up to 17 mm common between 5-11 cm, composed of sandy, glauconitic, siliceous ooze, moderate olive brown, (5Y 4/4); subrounded pebbles between 4-7 cm (20 mm) and 10-13 cm (19 mm); moderately disturbed between 0-5 cm; gradational contact. NOTE: Smear slide at 2 cm biased toward fine fraction.

smear slides:	2 cm	32 cm
Quartz	31	34
Feldspar	<1	<1
Heavy minerals	2	1
Clay	3	3
Volcanic glass	1	-
Glauconite	14	15
Micro-Mn nodules	<<1	-
Carbonate unspecified	1	-
Foraminifera	2	-
Diatoms	35	24
Radiolarians	10	22
Sponge spicules	1	1
Silicoflagellates	<<1	<<1

46-71 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4), mottled with light olive gray (5Y 5/2); glauconite content decreases with depth between 55-71 cm; sharp contact.

smear slide:	64 cm
Quartz	3
Feldspar	<1
Heavy minerals	<1
Clay	6
Volcanic glass	<1
Glauconite	4
Carbonate unspecified	1
Diatoms	83
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<<1

71-286 cm: Diatomaceous, nannofossil ooze, yellowish gray (5Y 7/2), gradationally changing to yellowish gray (5Y 8/1) between 137-165 cm and 266-286 cm (coincides with an increase in nannofossil content); irregular laminae of glauconitic, diatomaceous, nannofossil ooze, yellowish gray (5Y 7/2), between 72-74 cm (0.6 cm), 77-78 cm (0.2 cm), and 85-86 cm (0.4 cm); laminated between 237-286 cm; slightly bioturbated between 81-237 cm; gradational contact.

smear slides:	75 cm	137 cm
Quartz	1	1
Feldspar	<1	<<1
Heavy minerals	-	<<1
Clay	8	3
Volcanic glass	<1	1
Glauconite	<1	<<1
Carbonate unspecified	-	<1
Foraminifera	<1	<<1
Calcareous nannos	64	78
Diatoms	25	17
Radiolarians	2	<1
Sponge spicules	<<1	<<1
Silicoflagellates	<<1	-

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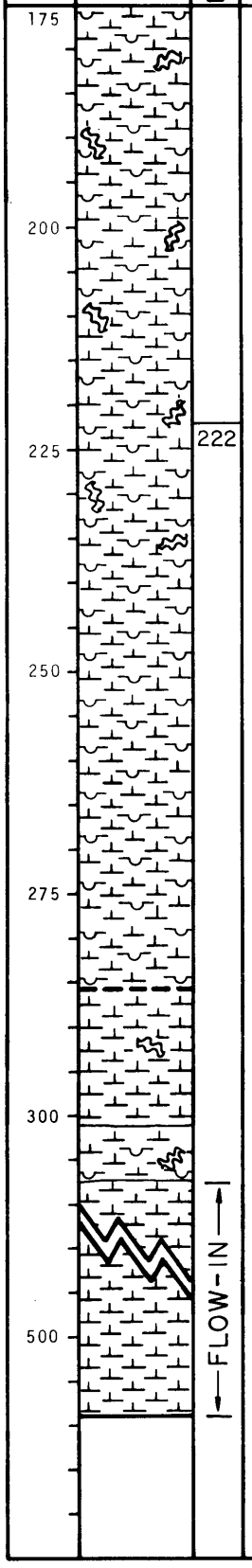
Logged by: Bergen, Graves, Goldstein

ISLAS ORCADAS PC 1678-33



LATITUDE: 50°13.9′ S
LONGITUDE: 45°59.9′ W
WATER DEPTH: 2465 M, 1348 FM
CORE LENGTH: 509 CM

LITHOLOGIC DESCRIPTION

286-509 cm: Nannofossil ooze, white (N9); layer of diatomaceous, nannofossil ooze, yellowish gray (5Y 8/1) between 301-307 cm; glauconite slightly scattered in small concentrations throughout unit; slightly bioturbated throughout; flow-in between 307-509 cm.

smear slide:	291 cm
Quartz	<1
Feldspar	1
Heavy minerals	<1
Volcanic glass	1
Glauconite	<<1
Carbonate unspecified	2
Foraminifera	<1
Calcareous nannos	84
Diatoms	12
Radiolarians	<1
Silicoflagellates	<<1

CORE CATCHER (115 grams): Diatomaceous, nannofossil ooze, yellowish gray (5Y 7/2); micro-manganese nodules sparsely scattered throughout.

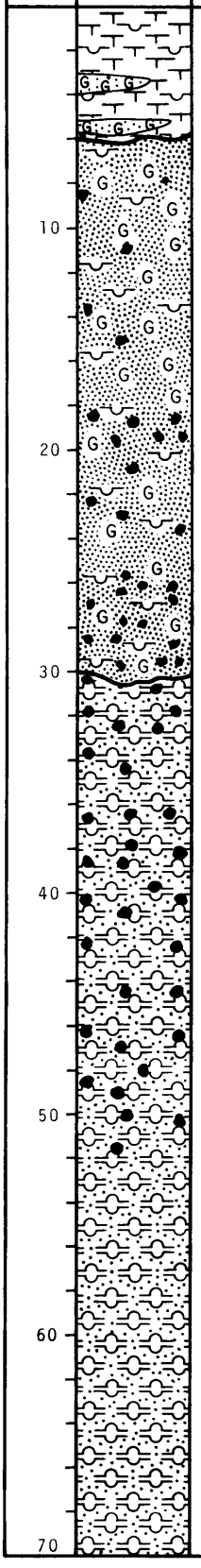
smear slide:	catcher
Quartz	<1
Clay	<1
Volcanic glass	<1
Micro-Mn nodules	<<1
Carbonate unspecified	<1
Foraminifera	<<1
Calcareous nannos	79
Diatoms	21
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<<1

Bottom topography: gently sloping; near the base of the westernmost portion of the northern flank of the Maurice Ewing Bank.

*NOTE: Sediment between 0-2 cm is bagged; consists of sandy, glauconitic, siliceous ooze, moderate olive brown (5Y 4/4), and foraminiferal-diatomaceous ooze, light olive gray (5Y 6/1), the latter containing abundant glauconite. (Deck-log records indicate that this sediment was probably obtained from the 'empty' portion of the core liner above the top of the sediment column.)

Logged by: Bergen, Graves, Goldstein

ISLAS ORCADAS PC 1678-34



LATITUDE: 50°09.9′ S
LONGITUDE: 45°54.0′ W
WATER DEPTH: 2769 M, 1514 FM
CORE LENGTH: 279 CM

LITHOLOGIC DESCRIPTION

0-6 cm: Diatomaceous-foraminiferal ooze, yellowish gray (5Y 7/2); sand and glauconite from the underlying unit are washed-in, concentrated in the upper 0-1 cm and in lenses between 3-4 cm and 5-6 cm; moderately washed along the side; sharp, irregular contact.

smear slide:	3 cm
Quartz	4
Feldspar	<1
Heavy minerals	<1
Clay	<1
Glauconite	<<1
Carbonate unspecified	4
Foraminifera	43
Calcareous nannos	10
Diatoms	37
Radiolarians	1
Sponge spicules	1
Silicoflagellates	<1

6-30 cm: Diatomaceous, glauconitic sand, olive gray (5Y 3/2); poorly sorted, medium sand; coarse and medium pebbles abundant between 25-30 cm; medium pebbles common between 18-20 cm; very fine pebbles sparsely scattered throughout; moderately washed along the side; sharp, irregular contact. NOTE: Smear slide is slightly biased toward diatoms.

smear slide:	23 cm
Quartz	47
Feldspar	1
Heavy minerals	1
Clay	2
Volcanic glass	<1
Rock fragments	1
Glauconite	20
Diatoms	25
Radiolarians	3
Sponge spicules	<1
Silicoflagellates	<<1

30-74 cm: Sandy, siliceous ooze, light olive brown (5Y 5/6); moderately indurated between 30-65 cm and 70-74 cm; highly indurated between 65-70 cm; glauconitic sand from the overlying unit is mixed in between 30-36 cm; medium and coarse pebbles common between 30-52 cm; sharp, irregular contact.

smear slide:	53 cm
Quartz	28
Feldspar	<1
Heavy minerals	1
Clay	2
Volcanic glass	<1
Glauconite	5
Diatoms	33
Radiolarians	30
Sponge spicules	1

74-83 cm: Muddy, diatomaceous ooze, light olive gray (5Y 6/1); glauconite common between 78-83 cm, sparsely scattered between 74-78 cm; irregular layer of diatomaceous, coarse sand between 74-76 cm; sharp contact.

smear slide:	77 cm
Quartz	28
Feldspar	2
Heavy minerals	<1
Clay	17
Volcanic glass	<1
Glauconite	4
Diatoms	40
Radiolarians	8
Sponge spicules	1
Silicoflagellates	<<1

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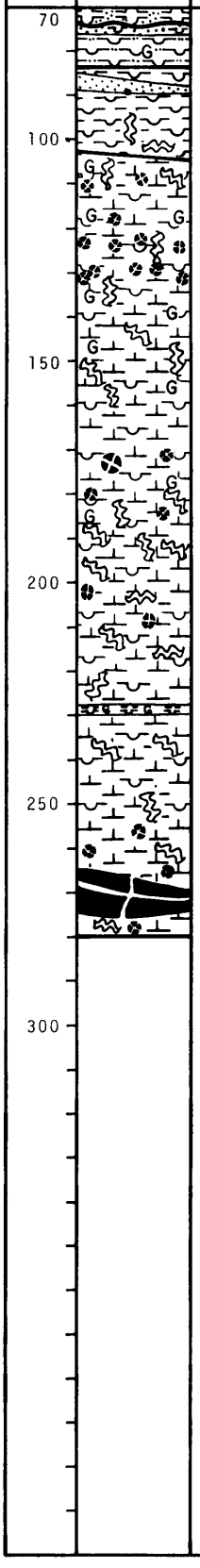
Logged by: Kaharoeddin, Humphreys

ISLAS ORCADAS PC 1678-34



LATITUDE: 50°09.9′ S
LONGITUDE: 45°54.0′ W
WATER DEPTH: 2769 M, 1514 FM
CORE LENGTH: 279 CM

LITHOLOGIC DESCRIPTION

83-104 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); layer of medium sand between 85-89 cm, with inclined top contact; 0.5 cm lense of medium sand between 89-90 cm; 5 mm pebble between 87-88 cm; moderately bioturbated between 93-104 cm; sharp, inclined contact.

smear slide:	92 cm
Quartz	4
Feldspar	<1
Mica	<<1
Heavy minerals	<1
Clay	1
Volcanic glass	1
Glauconite	<1
Diatoms	92
Radiolarians	2
Sponge spicules	<1
Silicoflagellates	<<1

104-279 cm: Diatomaceous-nannofossil ooze, yellowish gray (5Y 8/1); diatom and nannofossil content vary with depth; very fine glauconite abundant between 104-158 cm and 175-186 cm, sparsely scattered between 168-175 cm and 186-279 cm; 1.7 cm layer of glauconitic, siliceous ooze, light olive gray (5Y 6/1), between 227-229 cm; 0.4 cm inclined lamina of glauconitic, siliceous ooze, light olive gray (5Y 6/1), between 156-158 cm; sedimentary clasts, average size 5 mm, common between 119-133 cm, sparsely scattered between 105-119 cm, 169-185 cm, 199-210 cm and 253-279 cm, composed of glauconitic, siliceous ooze and diatomaceous ooze, light olive brown (5Y 5/6), soft; sedimentary clasts composed of diatomaceous ooze, light olive brown (5Y 5/6), soft, between 170-175 cm (45 mm), 204-206 cm (15 mm), and 208-210 cm (9 mm); sedimentary clast between 264-274 cm, composed of sandy, glauconitic, siliceous ooze, light olive brown (5Y 5/6), slightly compacted; highly bioturbated between 180-240 cm, moderately bioturbated between 104-160 cm and 240-279 cm; large bioturbation, 3 cm wide, between 189-196 cm, filled with glauconitic, nannofossil ooze, light olive gray (5Y 6/1), and glauconitic, radiolarian ooze, olive gray (5Y 3/2), soft; large bioturbations, inclined, between 211-219 cm (2.5 cm wide), and between 218-222 cm (3 cm), filled with radiolarian, nannofossil, diatomaceous ooze, greenish gray (5GY 6/1). NOTE: Smear slide at 269 cm (clast) slightly biased toward fine fraction.

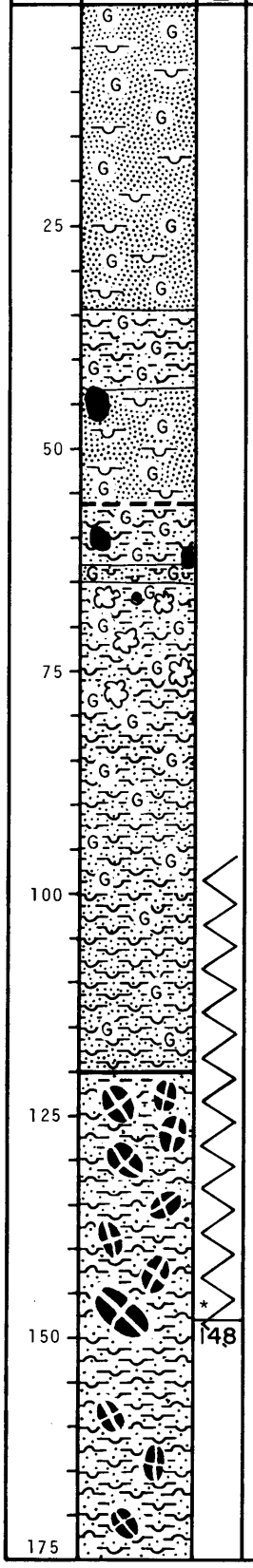
smear slides:	124 cm	247 cm	(Sed. clast) 269 cm	277 cm
Quartz	<1	<1	12	<1
Feldspar	-	-	-	<1
Heavy minerals	<1	-	1	<1
Clay	<1	<<1	4	<<1
Volcanic glass	-	-	1	1
Rock fragments	-	-	<1	-
Glauconite	<1	-	20	<1
Carbonate unspecified	<1	<<1	-	<1
Foraminifera	<1	<1	-	1
Calcareous nannos	53	50	-	44
Diatoms	45	48	36	50
Radiolarians	1	1	25	4
Sponge spicules	1	1	1	<1
Silicoflagellates	<<1	-	-	-

CORE CATCHER (4 grams): sediment is the same as that of overlying unit.

Bottom topography: gently sloping; near the base of the westernmost portion of the northern flank of the Maurice Ewing Bank.

Logged by: Kaharoeddin, Humphreys

ISLAS ORCADAS PC 1678-35



LATITUDE: 50°15.0' S
LONGITUDE: 45°22.5' W
WATER DEPTH: 2429 M, 1328 FM
CORE LENGTH: 520 CM

LITHOLOGIC DESCRIPTION

0-56 cm: Glauconitic, diatomaceous sand, olive gray (5Y 3/2); sand is fine and well-sorted; 9 cm layer of sandy, glauconitic, diatomaceous ooze, olive gray (5Y 3/2), between 34-43 cm; 25 mm subangular pebble between 43-47 cm; moderately washed along the side between 22-33 cm; gradational contact.

smear slide:	14 cm
Quartz	38
Feldspar	<1
Heavy minerals	3
Clay	2
Volcanic glass	<1
Glauconite	16
Micro-Mn nodules	<<1
Diatoms	32
Radiolarians	9
Sponge spicules	<1
Silicoflagellates	<<1

56-120 cm: Glauconitic, sandy, diatomaceous ooze, light olive gray (5Y 5/2), mottled with sandy, diatomaceous ooze, light olive gray (5Y 5/2) between 65-80 cm; quartz content varies with depth; 2 cm layer of diatomaceous, glauconitic sand, olive gray (5Y 3/2), between 63-65 cm; 29 mm subrounded pebble between 59-62 cm; 14 mm angular pebble between 62-64 cm; 9 mm angular pebble between 66-67 cm; highly disturbed (due to implosion of the core liner) between 96-120 cm; sharp contact.

smear slide:	74 cm
Quartz	29
Feldspar	<1
Heavy minerals	2
Clay	6
Volcanic glass	1
Glauconite	11
Foraminifera	<<1
Calcareous nannos	<<1
Diatoms	45
Radiolarians	6
Sponge spicules	<1
Silicoflagellates	<<1

120-229 cm: Sandy, radiolarian, diatomaceous ooze, light olive gray (5Y 5/2); zones of indurated sandy, radiolarian, diatomaceous ooze, light olive brown (5Y 5/6), between 120-150 cm, 205-211 cm, and 218-221 cm, containing abundant sedimentary clasts up to 54 mm; layer of glauconitic sand, olive gray (5Y 3/2), between 212-214 cm; layer of radiolarian-diatomaceous sand, light olive gray (5Y 5/2), between 226-229 cm; sedimentary clasts up to 30 mm common between 155-180 cm, composed of sandy, siliceous ooze, light olive brown (5Y 5/6); sedimentary clasts composed of glauconitic sand, olive gray (5Y 3/2), between 201-204 cm (12 mm and 20 mm); 33 mm subrounded pebble between 225-229 cm; 17 mm subangular pebble between 224-226 cm; moderately disturbed (due to implosion of the core liner) between 120-150 cm; slightly washed along the side between 200-214 cm; sharp contact. NOTE: Smear slides biased toward fine fraction.

smear slides:	139 cm	214 cm
Quartz	15	25
Feldspar	<1	<1
Heavy minerals	<1	1
Clay	12	4
Volcanic glass	<1	<1
Glauconite	7	10
Diatoms	50	44
Radiolarians	16	15
Sponge spicules	<1	1
Silicoflagellates	<1	<1

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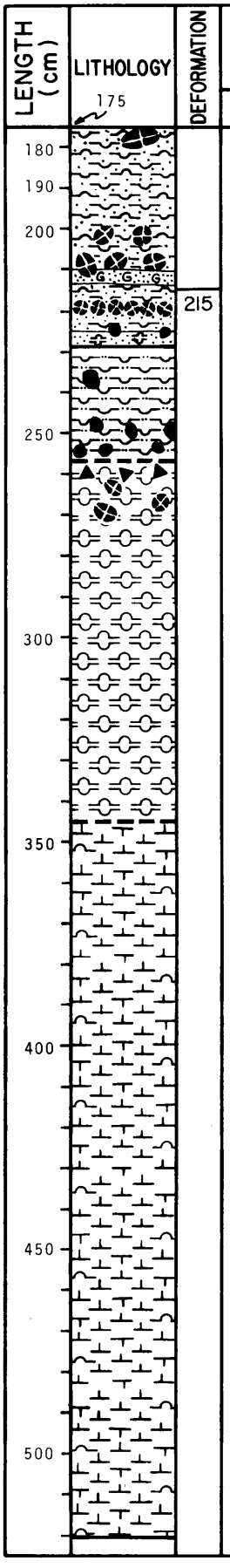
Logged by: Bergen, Watkins, Graves, Goldstein, Eggers

ISLAS ORCADAS PC 1678-35



LATITUDE: 50°15.0′ S
LONGITUDE: 45°22.5′ W
WATER DEPTH: 2429 M, 1328 FM
CORE LENGTH: 520 CM

LITHOLOGIC DESCRIPTION

229-257 cm: Muddy, diatomaceous ooze, light olive brown (5Y 5/6), changing abruptly to grayish olive (10Y 4/2) between 231-247 cm; highly indurated between 241-257 cm; moderately indurated between 231-241 cm; 31 mm subrounded pebble between 235-239 cm; medium to coarse pebbles abundant between 244-257 cm; gradational contact.

smear slide:	252 cm
Quartz	6
Feldspar	1
Heavy minerals	<1
Clay	27
Volcanic glass	1
Glauconite	7
Diatoms	45
Radiolarians	13
Sponge spicules	<1
Silicoflagellates	<<1

257-345 cm: Siliceous ooze, dusky yellow (5Y 6/4); chert fragments up to 17 mm common between 257-261 cm; highly indurated sedimentary clasts between 263-265 cm (18 mm), 265-268 cm (28 mm), and 267-271 cm (30 mm), composed of siliceous ooze, pale olive (10Y 6/2); 2.5 cm layer of indurated siliceous ooze, pale olive (10Y 6/2), between 274-277 cm, gradational contact.

smear slide:	294 cm
Quartz	3
Heavy minerals	<<1
Clay	25
Opaline silica	31
Glauconite	<1
Diatoms	<1
Radiolarians	41
Sponge spicules	<1

345-520 cm: Radiolarian, foraminiferal, nannofossil ooze, very pale orange (10YR 8/2).

smear slide:	433 cm
Quartz	<1
Clay	<1
Volcanic glass	<1
Carbonate unspecified	1
Foraminifera	25
Calcareous nannos	58
Diatoms	<<1
Radiolarians	15
Sponge spicules	1
Silicoflagellates	<<1

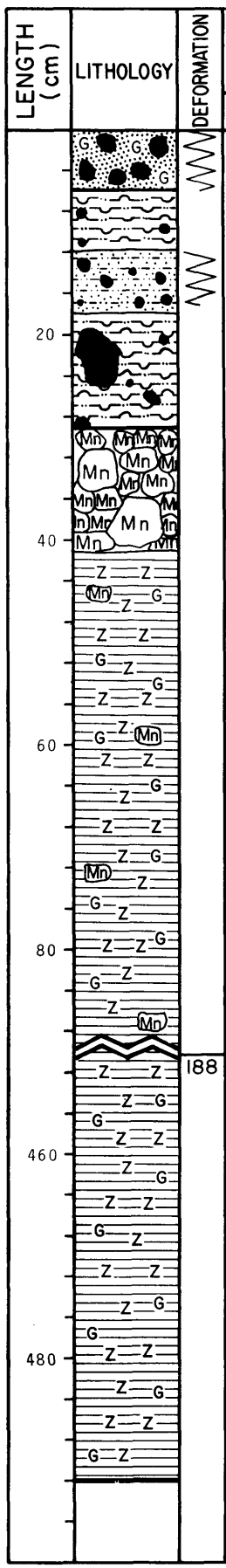
CORE CATCHER (52 grams): sediment is the same as that of overlying unit.

Bottom topography: very gently sloping; on the western portion of the northern flank of the Maurice Ewing Bank.

*NOTE: Sediment between 143-148 cm is bagged.

Logged by: Bergen, Watkins, Graves, Goldstein, Eggers

ISLAS ORCADAS PC 1678-36



LATITUDE: 50°13.4′ S
LONGITUDE: 45°25.8′ W
WATER DEPTH: 2622 M, 1434 FM
CORE LENGTH: 492 CM

LITHOLOGIC DESCRIPTION

0-6 cm: Pebbly, glauconitic sand, light olive gray (5Y 5/2); sand is fine and well-sorted; pebbles are dominantly coarse in size; highly disturbed; sharp contact. NOTE: Smear slide only includes particles smaller than 2 mm.

smear slide:	3 cm
Quartz	51
Feldspar	<1
Heavy minerals	2
Clay	3
Volcanic glass	1
Glauconite	27
Carbonate unspecified	2
Foraminifera	3
Calcareous nannos	<<1
Diatoms	9
Radiolarians	2
Sponge spicules	<<1
Silicoflagellates	<<1

6-29 cm: Radiolarian, muddy, diatomaceous ooze, dusky yellow (5Y 6/4); zone of increased sand content between 6-8 cm; 6 cm layer of pebbly, sandy mud, light olive brown (5Y 5/6), between 12-18 cm; 41 mm angular pebble between 19-26 cm; fine to medium pebbles common throughout; moderately disturbed due to implosion of the core liner between 12-17 cm; sharp contact.

smear slide:	9 cm
Quartz	28
Feldspar	<1
Heavy minerals	1
Clay	15
Volcanic glass	1
Glauconite	5
Diatoms	34
Radiolarians	15
Sponge spicules	1
Silicoflagellates	<<1

29-492 cm: Zeolitic clay, very pale orange (10YR 8/2); glauconite abundant throughout; foraminifera sparsely scattered throughout; 12 cm layer of manganese nodules (up to 48 mm), brownish black (5YR 2/1), between 29-41 cm; discontinuous 2 mm laminae of zeolitic clay, stained by manganese oxides, common between 41-140 cm and 325-329 cm; 2 mm laminae of clay with lower zeolite content, white (N9), common between 41-160 cm; manganese nodules up to 12 mm sparsely scattered between 41-420 cm.

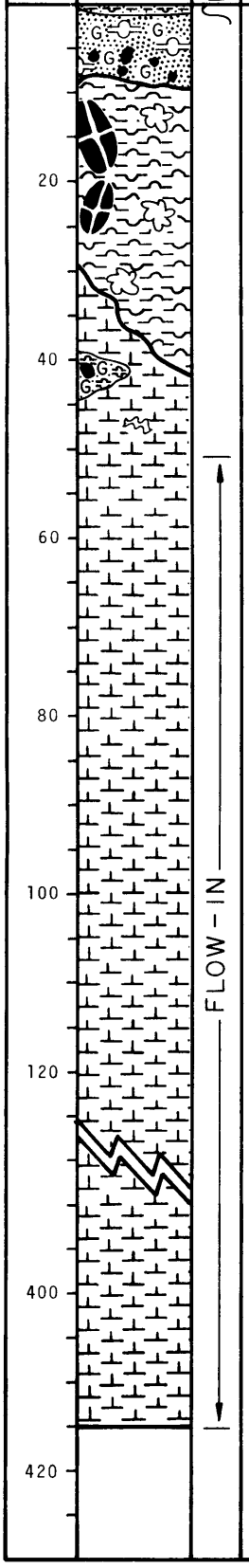
smear slides:	93 cm	464 cm
Quartz	2	2
Feldspar	<1	-
Clay	66	69
Volcanic glass	<1	<1
Glauconite	2	1
Zeolite	30	28
Carbonate unspecified	-	<<1

CORE CUTTER AND CATCHER (208 grams): sediment is the same as that of overlying unit.

Bottom topography: gently sloping; on the western portion of the northern flank of the Maurice Ewing Bank.

Logged by: Bergen, Kaharoeddin

ISLAS ORCADAS PC 1678-37



LATITUDE: 50°21.8′ S
LONGITUDE: 44°32.6′ W
WATER DEPTH: 1580 M, 864 FM
CORE LENGTH: 415 CM

LITHOLOGIC DESCRIPTION

0-9 cm: Glauconitic, radiolarian-diatomaceous sand, grayish olive (10Y 4/2); sand is fine and poorly sorted; layer of sandy, diatomaceous, foraminiferal ooze, light olive gray (5Y 6/1), containing abundant glauconite, between 0-2 cm; 16 mm subrounded pebble between 4-6 cm; pebbles, up to 5 mm, common between 4-9 cm; slightly disturbed (washed) between 0-2 cm; sharp, irregular contact. NOTE: Slide at 6 cm slightly biased toward fine fraction.

smear slides:	(layer) 1 cm	6 cm
Quartz	21	41
Feldspar	1	1
Heavy minerals	1	1
Clay	3	1
Volcanic glass	<1	<1
Glauconite	9	13
Carbonate unspecified	5	-
Foraminifera	30	<<1
Calcareous nannos	2	-
Diatoms	21	25
Radiolarians	7	18
Sponge spicules	<1	<1
Silicoflagellates	<<1	-

9-34 cm: Diatomaceous, radiolarian ooze, dusky yellow (5Y 6/4), mottled with yellowish gray (5Y 7/2); glauconite sparsely scattered; sedimentary clasts between 11-19 cm (63 mm) and 21-26 cm (46 cm), composed of glauconitic, sandy, siliceous ooze, moderate olive brown (5Y 4/4), containing several pebbles up to 4 mm; sharp, inclined, irregular contact between 28-41 cm.

smear slide:	11 cm
Quartz	3
Feldspar	<1
Mica	<<1
Heavy minerals	<<1
Clay	5
Glauconite	1
Foraminifera	<<1
Calcareous nannos	3
Diatoms	26
Radiolarians	55
Sponge spicules	4
Silicoflagellates	3

34-415 cm: Nannofossil ooze, white (N9); volcanic ash sparsely scattered; lense of glauconitic, sandy, siliceous ooze, moderate olive brown (5Y 4/4), between 38-44 cm, containing a 24 mm angular pebble between 40-43 cm; slightly bioturbated; flow-in between 51-415 cm.

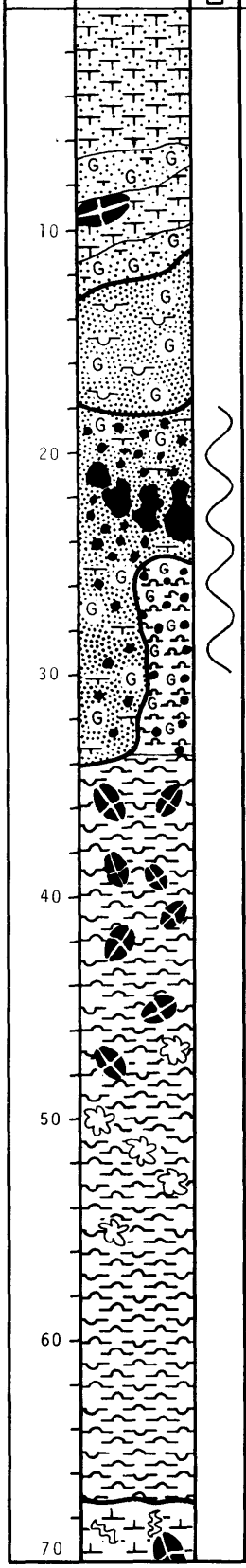
smear slide:	45 cm
Quartz	<1
Feldspar	1
Volcanic glass	<1
Micro-Mn nodules	<<1
Carbonate unspecified	<1
Foraminifera	3
Calcareous nannos	90
Diatoms	3
Radiolarians	3
Sponge spicules	<1
Silicoflagellates	<1

CORE CUTTER AND CATCHER (210 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: flat; on the upper slope of the northern flank of the Maurice Ewing Bank.

Logged by: Bergen, Watkins, Graves, Goldstein

ISLAS ORCADAS PC 1678-38



LATITUDE: 50°18.1′ S
LONGITUDE: 44°18.3′ W
WATER DEPTH: 1595 M, 872 FM
CORE LENGTH: 309 CM

LITHOLOGIC DESCRIPTION

0-12 cm: Sandy, foraminiferal ooze, white (N9); sand content varies with depth; two inclined layers between 6-9 cm (2.1 cm) and 10-12 cm (1.4 cm), composed of glauconitic, foraminiferal sand, grayish olive (10Y 4/2); 12 mm sedimentary clast between 8-10 cm, composed of glauconitic, diatomaceous sand, moderate olive brown (5Y 4/4); slightly washed along the side; sharp, inclined contact. NOTE: Smear slide at 8 cm biased toward diatoms.

smear slides:	3 cm	(layer) 8 cm
Quartz	6	34
Feldspar	<<1	<1
Heavy minerals	1	2
Clay	2	1
Volcanic glass	<1	<1
Glauconite	6	6
Carbonate unspecified	7	6
Foraminifera	65	21
Calcareous nannos	1	<<1
Diatoms	7	26
Radiolarians	5	4
Sponge spicules	<1	<1
Silicoflagellates	<<1	<<1

12-18 cm: Glauconitic, diatomaceous sand, moderate olive brown (5Y 4/4); sand is fine, poorly sorted; slightly washed along the side; sharp contact, convexing downward. NOTE: Smear slide biased toward diatoms.

smear slide:	14 cm
Quartz	42
Feldspar	1
Heavy minerals	2
Clay	5
Glauconite	15
Diatoms	24
Radiolarians	11
Sponge spicules	<1
Silicoflagellates	<<1

18-30 cm: Glauconitic, foraminiferal sand, light olive brown (5Y 5/6); sand is medium, poorly sorted; pebbles up to 5 mm abundant between 18-25 cm, common between 25-34 cm; 14 mm rounded pebble between 20-22 cm; 3 angular pebbles between 21-23 cm (15 mm), 21-24 cm (22 mm), and 21-25 cm (29 mm); slightly disturbed; sharp, irregular contact, nearly vertical between 25-34 cm. NOTE: Sediment from the above units may have been washed down into the interstices of the pebbles, forming a mixed sediment.

smear slide:	22 cm		
Quartz	43	Carbonate unspecified	5
Feldspar	1	Foraminifera	20
Mica	<<1	Calcareous nannos	1
Heavy minerals	3	Diatoms	4
Clay	1	Radiolarians	7
Volcanic glass	2	Sponge spicules	<<1
Glauconite	13	Silicoflagellates	<<1

30-67 cm: Diatomaceous, radiolarian ooze, grayish orange (10YR 7/4), mottled with dark yellowish orange (10YR 6/6) between 46-56 cm; volcanic ash sparsely scattered throughout; layer of glauconitic, pebbly, radiolarian ooze, dusky yellow (5Y 6/4), between 30-34 cm, forming a sharp, almost vertical contact between 25-34 cm with the unit above it, and a sharp, horizontal lower contact with the unit in which it is contained; sedimentary clasts up to 30 mm common between 34-49 cm, composed of radiolarian ooze, dark yellowish orange (10YR 6/6), highly compacted; sedimentary clasts up to 25 mm common between 34-44 cm, composed of sandy, glauconitic, radiolarian ooze, light olive brown (5Y 5/6); slightly washed along the side; sharp, irregular contact.

smear slide:	54 cm		
Quartz	2	Diatoms	21
Feldspar	<1	Radiolarians	44
Heavy minerals	<1	Sponge spicules	2
Clay	23	Silicoflagellates	<1
Volcanic glass	8		

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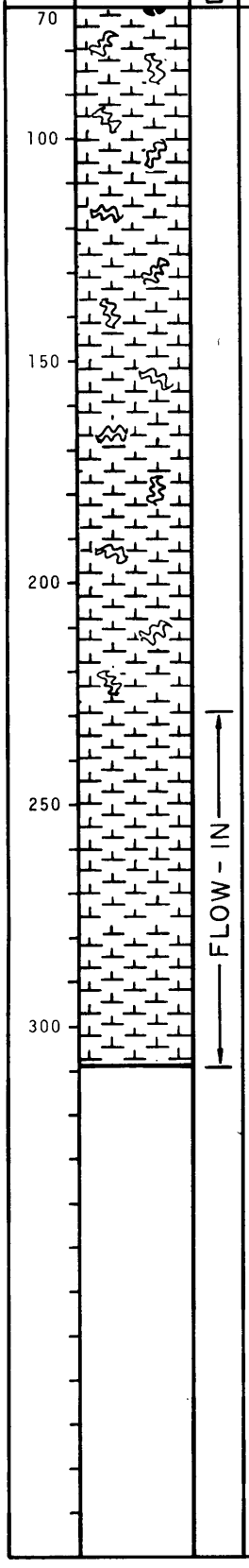
Logged by: Bergen, Watkins, Graves, Eggers

ISLAS ORCADAS PC 1678-38



LATITUDE: 50°18.1′ S
LONGITUDE: 44°18.3′ W
WATER DEPTH: 1595 M, 872 FM
CORE LENGTH: 309 CM

LITHOLOGIC DESCRIPTION

67-309 cm: Nannofossil ooze, white (N9); 26 mm sedimentary clast between 68-71 cm, composed of sandy, glauconitic, radiolarian ooze, dusky yellow (5Y 6/4); slightly bioturbated; flow-in between 229-309 cm.

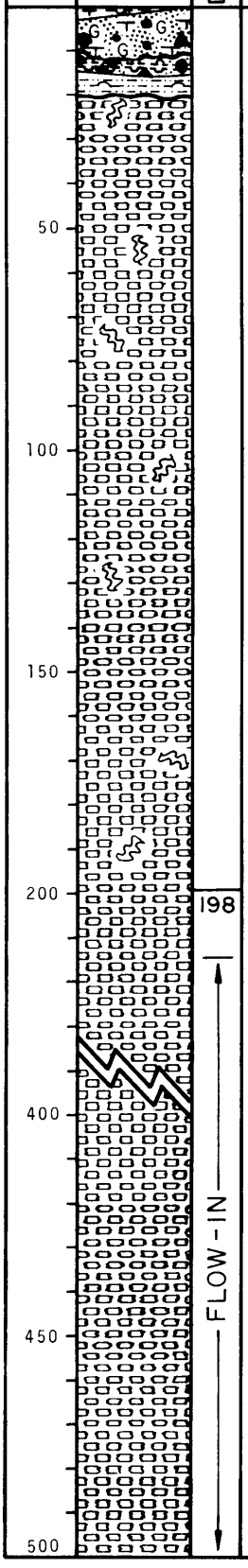
smear slide:	73 cm
Feldspar	<1
Clay	<1
Volcanic glass	1
Carbonate unspecified	2
Foraminifera	8
Calcareous nannos	84
Radiolarians	5
Sponge spicules	<1
Silicoflagellates	<1

CORE CUTTER AND CATCHER (312 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: very gently sloping; on the upper slope of the northern flank of the Maurice Ewing Bank.

Logged by: Bergen, Watkins, Graves, Eggers

ISLAS ORCADAS PC 1678-39



LATITUDE: 50°10.6′ S
LONGITUDE: 43°44.8′ W
WATER DEPTH: 1840 M, 1006 FM
CORE LENGTH: 500 CM

LITHOLOGIC DESCRIPTION

0-11 cm: Foraminiferal, glauconitic sand, light olive gray (5Y 5/2); sand is medium and poorly sorted; 3 cm inclined layer of diatomaceous, foraminiferal ooze, yellowish gray (5Y 7/2), between 0-3 cm; 28 mm rounded pebble between 6-9 cm; 22 mm angular chert fragment between 7-10 cm; pebbles up to 22 mm common between 0-11 cm; slightly washed along the side; sharp, sinuous contact.
NOTE: The layer of diatomaceous, foraminiferal ooze may have been washed up along the side of the core.

smear slides:	(layer) 1 cm	5 cm
Quartz	6	50
Feldspar	<1	1
Mica	<<1	-
Heavy minerals	1	6
Clay	12	2
Volcanic glass	2	3
Rock fragments	-	1
Glauconite	<<1	18
Carbonate unspecified	5	<<1
Foraminifera	32	17
Calcareous nannos	18	<1
Diatoms	20	1
Radiolarians	3	1
Sponge spicules	1	<<1
Silicoflagellates	<<1	-

11-20 cm: Radiolarian mud, dusky yellow (5Y 6/4); 4 cm layer of sandy, siliceous ooze, light olive brown (5Y 5/6), between 11-15 cm; 19 mm subrounded pebble between 14-16 cm; 28 mm angular chert fragment between 10-14 cm; chert fragments up to 10 mm common between 11-13 cm; sharp, irregular contact.

smear slide:	17 cm
Quartz	2
Feldspar	<1
Heavy minerals	<1
Clay	55
Volcanic glass	<1
Radiolarians	28
Sponge spicules	15

20-500 cm: Calcareous ooze, very pale orange (10YR 8/2); volcanic ash sparsely scattered; slightly bioturbated; flow-in between 215-500 cm.

smear slide:	32 cm
Quartz	2
Feldspar	<1
Heavy minerals	<<1
Clay	1
Volcanic glass	<<1
Carbonate unspecified	<1
Foraminifera	35
Calcareous nannos	40
Diatoms	6
Radiolarians	12
Sponge spicules	4
Silicoflagellates	<1

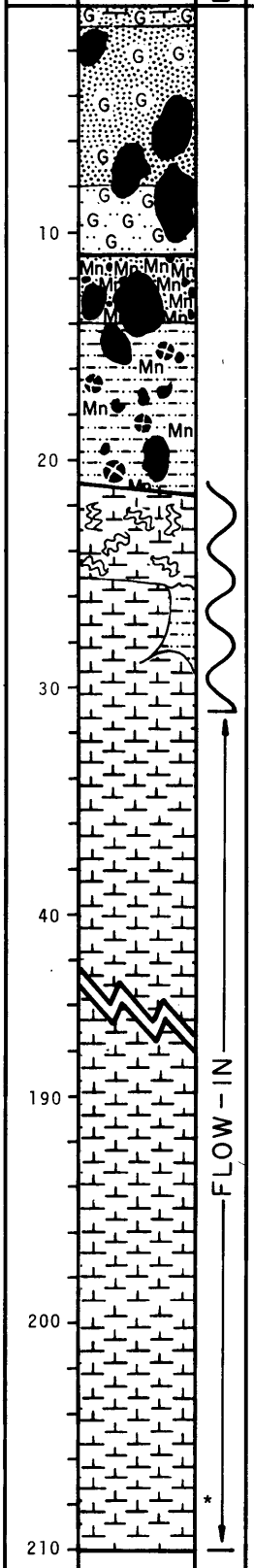
CORE CUTTER AND CATCHER (159 grams): sediment has lower foraminifera content than does the overlying unit.

Bottom topography: gently sloping; on the upper slope of the northern flank of the Maurice Ewing Bank.

Logged by: Bergen, Goldstein, Kaharoeddin, Humphreys

ISLAS ORCADAS PC 1678-41

LATITUDE: 50°14.6′ S
LONGITUDE: 43°35.8′ W
WATER DEPTH: 1655 M, 905 FM
CORE LENGTH: 210 CM



LITHOLOGIC DESCRIPTION

0-11 cm: Glauconitic sand, light olive gray (5Y 5/2), gradationally changing at 8 cm to light olive brown (5Y 5/6); sand is fine and poorly sorted; 1 cm layer of glauconitic, foraminiferal sand between 0-1 cm, yellowish gray (5Y 7/2); 3 cm layer of glauconitic, muddy sand between 8-11 cm; subangular pebbles between 1-3 cm (23 mm), 4-7 cm (30 mm), 6-9 cm (25 mm), and 7-11 cm 36 mm); sharp contact.

smear slides:	6 cm	(layer) 10 cm
Quartz	61	40
Feldspar	1	1
Heavy minerals	2	2
Clay	8	34
Volcanic glass	3	6
Rock fragments	1	-
Glauconite	12	13
Foraminifera	<1	-
Calcareous nannos	<1	-
Diatoms	10	3
Radiolarians	2	1
Sponge spicules	<1	<1

11-21 cm: Mud, light olive gray (5Y 5/2); unit moderately stained with manganese oxides; 3 cm layer of manganese oxides between 11-14 cm, brownish black (5YR 2/1), imbedded with sand to fine pebbles; sedimentary clasts up to 7 mm common between 14-21 cm, composed of zeolitic clay, very pale orange (10YR 8/2), moderately compacted; rounded, coarse pebbles abundant between 12-16 cm, highly encrusted with manganese oxides; subangular, medium to coarse pebbles common between 16-21 cm, moderately encrusted with manganese oxides; sharp, inclined contact.

smear slide:	17 cm
Quartz	27
Feldspar	2
Heavy minerals	3
Clay	56
Volcanic glass	3
Glauconite	4
Micro-Mn nodules	<1
Zeolite	4
Calcareous nannos	<<1
Diatoms	1
Sponge spicules	<<1

21-210 cm: Nannofossil ooze, very pale orange (10YR 8/2); 4 cm layer of nannofossil ooze, yellowish gray (5Y 7/2), between 21-25 cm, with a lower foraminiferal content, and having a sharp, inclined, and irregular basal contact between layer and unit; highly bioturbated between 21-25 cm; moderately disturbed between 21-31 cm; sediment from overlying unit (mud) dragged in along the side between 25-29 cm; abrupt change to flow-in at 31 cm.

smear slides:	24 cm (layer)	29 cm
Quartz	1	1
Feldspar	<<1	<<1
Heavy minerals	<1	<<1
Clay	1	<<1
Volcanic glass	1	1
Glauconite	1	-
Carbonate unspecified	5	3
Foraminifera	8	12
Calcareous nannos	83	83

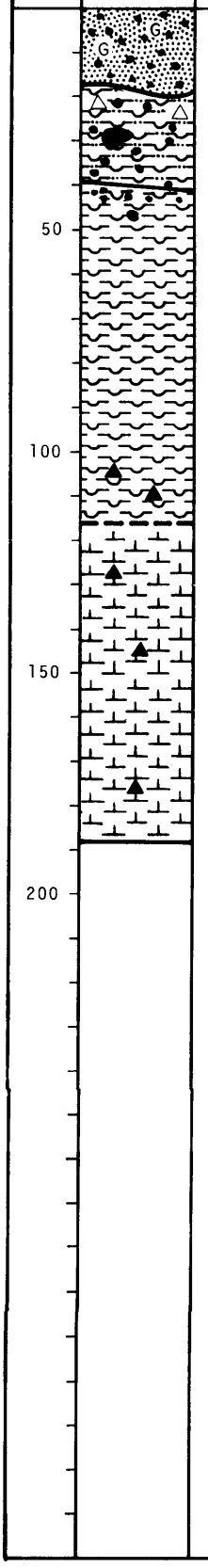
CORE CATCHER AND CUTTER (167 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; on the upper slope of the northern flank of the Maurice Ewing Bank.

*NOTE: Sediment between 205-210 cm is bagged.

Logged by: Eggers, Humphreys, Harwood, Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-43



LATITUDE: 49°57.3′ S CORR. DEPTH: 1706 M, 933 FM

LONGITUDE: 42°43.6′ W CORE LENGTH: 188 CM

LITHOLOGIC DESCRIPTION

0-19 cm: Pebbly sand, light olive gray (5Y 5/2); sand is fine and moderately sorted; angular to subangular pebbles, poorly sorted, median diameter 13 mm; zone with higher content of glauconite and foraminifera between 0-11 cm; sharp, sinuous contact. NOTE: Smear slide slightly biased toward diatoms.

smear slide:	4 cm (zone)		
Quartz	40	Foraminifera	3
Feldspar	1	Diatoms	22
Heavy minerals	3	Radiolarians	5
Volcanic glass	<1	Sponge spicules	<1
Glauconite	25	Silicoflagellates	<<1
Carbonate unspecified	1		

19-39 cm: Pebbly, muddy, diatomaceous ooze, light olive brown (5Y 5/6); pebbles moderately sorted, median diameter 5 mm; 49 mm pebble between 28-33 cm; pumice up to 5 mm common between 23-24 cm; sharp, inclined contact.

smear slide:	30 cm		
Quartz	30	Glauconite	<1
Feldspar	1	Diatoms	54
Heavy minerals	1	Radiolarians	2
Clay	12	Sponge spicules	<1
Volcanic glass	<<1	Silicoflagellates	<<1

39-116 cm: Diatomaceous ooze, dark yellowish orange (10YR 6/6) gradationally changing to grayish orange (10YR 7/4) at 60 cm; angular pebbles abundant between 40-42 cm, median diameter 6 mm; 12 mm pebble between 44-46 cm; 5 mm fragments of chert between 104-105 cm and 107-108 cm; sediment moderately compacted between 39-60 cm, slightly compacted between 60-116 cm; gradational contact.

smear slide:	50 cm		
Quartz	8	Radiolarians	3
Feldspar	1	Sponge spicules	1
Heavy minerals	<1	Silicoflagellates	<1
Clay	7	Ebridians	1
Diatoms	79		

116-188 cm: Nannofossil ooze, very pale orange (10YR 8/2) with streaks of grayish orange (10YR 7/4); volcanic ash sparsely scattered throughout; 3 mm piece of chert between 125-126 cm and 144-145 cm, and 10 mm piece of chert between 175-176 cm.

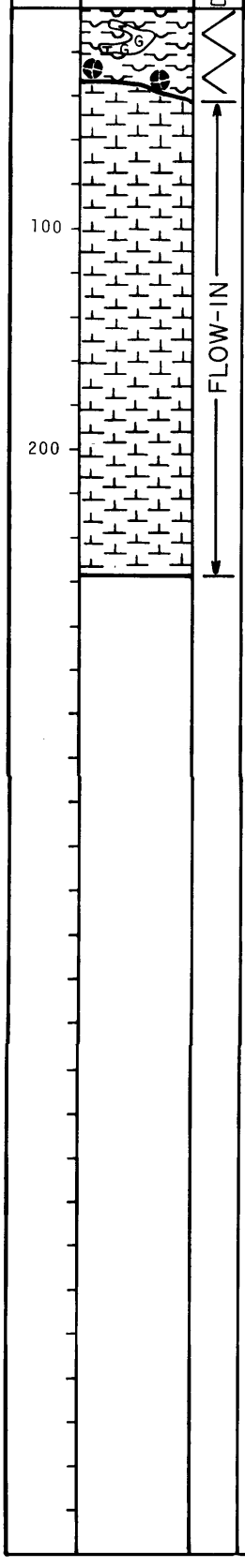
smear slide:	127 cm		
Feldspar	<1	Radiolarians	4
Foraminifera	10	Sponge spicules	<1
Calcareous nannos	78	Silicoflagellates	<<1
Diatoms	8		

CORE CATCHER (115 grams): sediment is the same as that of overlying unit.

Bottom topography: very gently sloping; on the upper slope of the northern flank of the Maurice Ewing Bank.

Logged by: Goldstein, Jones, Kaharoeddin

ISLAS ORCADAS PC 1678-44



LATITUDE: 49°58.7′ S CORR. DEPTH: 1677 M, 917 FM

LONGITUDE: 42°38.4′ W CORE LENGTH: 257 CM

LITHOLOGIC DESCRIPTION

0-36 cm: Diatomaceous ooze, light olive brown (5Y 5/6); stringers of ooze (5 mm average width), rich in foraminifera and glauconite, abundant between 0-20 cm; sedimentary clasts up to 20 mm, composed of nannofossil ooze, yellowish gray (5Y 7/2), common between 26-35 cm; moderately disturbed (washed) between 0-36 cm; sharp, inclined, wavy contact. NOTE: This unit is possibly a mixture of diatomaceous ooze and glauconitic foraminiferal ooze. The mixing is probably due to implosion of the plastic liner.

smear slides:	6 cm	21 cm
Quartz	4	2
Feldspar	<1	1
Mica	<1	-
Heavy minerals	-	<1
Clay	2	2
Glauconite	1	-
Foraminifera	6	3
Calcareous nannos	5	-
Diatoms	70	80
Radiolarians	10	8
Sponge spicules	2	2
Silicoflagellates	<1	1
Ebridians	-	1

36-257 cm: Nannofossil ooze, very pale orange (10YR 8/2); gradational change to flow-in at 41 cm; pieces of imploded plastic liner found between 33-41 cm, 119-162 cm, and 199-257 cm.

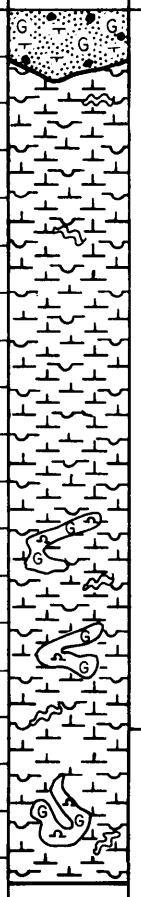
smear slide:	37 cm
Feldspar	1
Foraminifera	3
Calcareous nannos	86
Diatoms	8
Radiolarians	2
Sponge spicules	<1
Silicoflagellates	<<1

CORE CUTTER AND CATCHER (269 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: very gently sloping; on the upper slope of the northern flank of the Maurice Ewing Bank.

Logged by: Kaharoeddin, Jones, Eggers

ISLAS ORCADAS PC 1678-45



LATITUDE: 50°02.5′ S CORR. DEPTH: 1624 M, 888 FM

LONGITUDE: 42°38.3′ W CORE LENGTH: 74 CM

LITHOLOGIC DESCRIPTION

0-5 cm: Glauconitic, foramin·feral quartz sand, olive gray (5Y 3/2); sand is fine and moderately sorted; angular to subangular pebbles, ranging in size from 2-24 mm, median diameter 3 mm, common throughout; decreasing foraminiferal content and increasing sand size with depth; sharp, erosional contact.

smear slide:	1 cm
Quartz	41
Feldspar	1
Heavy minerals	2
Clay	5
Volcanic glass	1
Glauconite	16
Carbonate unspecified	1
Foraminifera	20
Calcareous nannos	2
Diatoms	8
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<<1

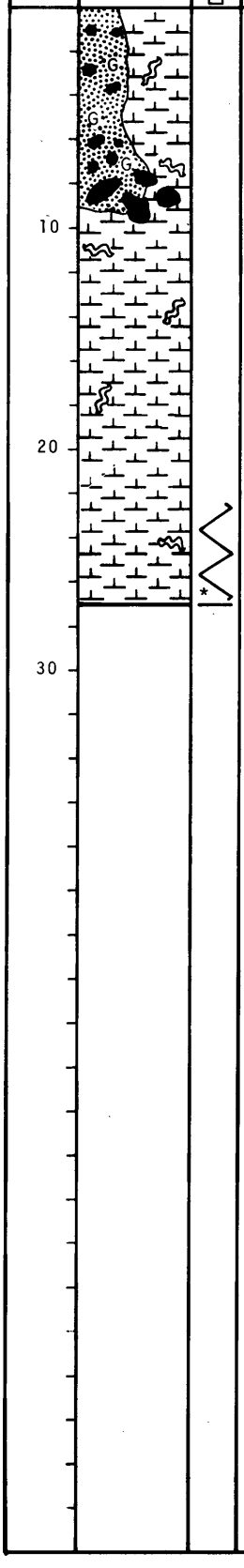
5-74 cm: Diatomaceous, nannofossil ooze, very pale orange (10YR 8/2); glauconite sparsely scattered throughout; stringers composed of radiolaria and glauconite sparsely scattered between 43-57 cm and 66-72 cm; irregular patch, yellowish gray (5Y 8/1), with higher siliceous microfossil content between 65-70 cm; moderately bioturbated throughout.

smear slides:	5 cm	30 cm	65 cm
Quartz	<<1	-	-
Feldspar	-	<<1	<<1
Clay	<<1	-	-
Foraminifera	4	8	6
Calcareous nannos	69	79	73
Diatoms	20	10	17
Radiolarians	7	3	4
Sponge spicules	<1	<<1	<1
Silicoflagellates	<1	<<1	<<1

Bottom topography; very gently sloping; on the upper slope of the northern flank of the Maurice Ewing Bank.

Logged by: Jones, Graves, Kaharoeddin, Eggers

ISLAS ORCADAS PC 1678-46



LATITUDE: 50°00.2′ S CORR. DEPTH: 1693 M, 926 FM

LONGITUDE: 42°10.7′ W CORE LENGTH: 27 CM

LITHOLOGIC DESCRIPTION

0-27 cm: Nannofossil ooze, white (N9); volcanic ash sparsely scattered throughout; 9 cm cast between 0-9 cm composed of pebbly, glauconitic sand, moderate olive brown (5Y 4/4); sand is medium and moderately sorted; angular pebbles up to 25 mm abundant between 6-9 cm; slightly bioturbated; moderately disturbed between 23-26 cm due to removal of the core catcher.

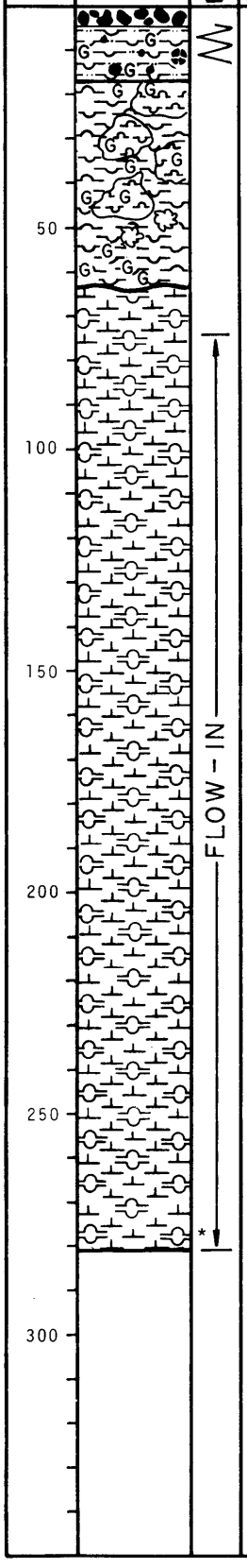
smear slides:	4 cm (cast)	20 cm
Quartz	46	-
Feldspar	1	<1
Heavy minerals	3	-
Clay	5	-
Volcanic glass	2	<<1
Rock fragments	5	-
Glauconite	15	-
Carbonate unspecified	1	-
Foraminifera	5	8
Calcareous nannos	1	87
Diatoms	8	3
Radiolarians	6	2
Sponge spicules	2	<1
Silicoflagellates	<1	<<1
Ebridians	<<1	-

Bottom topography: gently sloping; on the upper slope of the northern flank of the Maurice Ewing Bank.

* NOTE: Sediment between 26-27 cm is bagged.

Logged by: Jones, Goldstein, Kaharoeddin, Eggers

ISLAS ORCADAS PC 1678-47



LATITUDE: 49°59.4' S WATER DEPTH: 1529 M, 836 FM
LONGITUDE: 41°47.0' W CORE LENGTH: 281 CM

LITHOLOGIC DESCRIPTION

0-17 cm: Muddy, diatomaceous ooze, light olive brown (5Y 5/6); glauconite abundant between 4-17 cm; 4 cm layer of pebbles up to 25 mm between 0-4 cm; 1.2 cm layer of moderately indurated diatomaceous mud, moderate olive brown (5Y 4/4), between 15-17 cm; 19 mm highly indurated sedimentary clast between 11-13 cm, composed of diatomaceous mud, grayish brown (5YR 3/2); 24 mm subrounded pebble between 13-16 cm; fine pebbles common throughout; moderately disturbed between 4-13 cm due to imbedded liner fragment; sharp contact.

smear slides:	9 cm	(layer) 16 cm
Quartz	20	2
Feldspar	1	2
Heavy minerals	1	<<1
Clay	20	65
Volcanic glass	2	2
Glauconite	8	7
Carbonate unspecified	<1	-
Calcareous nannos	<<1	-
Diatoms	43	15
Radiolarians	5	6
Sponge spicules	<1	1
Silicoflagellates	-	<<1

17-63 cm: Intermixed glauconitic, radiolarian, diatomaceous ooze and glauconitic, diatomaceous, radiolarian ooze, light olive gray (5Y 5/2), mottled with diatomaceous ooze, dusky yellow (5Y 6/4), between 45-55 cm; glauconite content increases with depth; stringers rich in glauconite scattered between 17-56 cm; sharp, irregular contact.

smear slides:	33 cm	58 cm
Quartz	5	7
Feldspar	<1	1
Heavy minerals	<1	<1
Clay	3	10
Volcanic glass	2	2
Glauconite	8	28
Diatoms	51	13
Radiolarians	28	36
Sponge spicules	3	3
Silicoflagellates	<<1	<<1

63-281 cm: Siliceous, nannofossil ooze, pinkish gray (5YR 8/1); flow-in between 73-281 cm.

smear slide:	69 cm
Quartz	2
Feldspar	<1
Heavy minerals	<<1
Clay	<1
Volcanic glass	1
Glauconite	3
Carbonate unspecified	5
Foraminifera	3
Calcareous nannos	46
Diatoms	20
Radiolarians	17
Sponge spicules	3
Silicoflagellates	<1
Ebridians	<<1

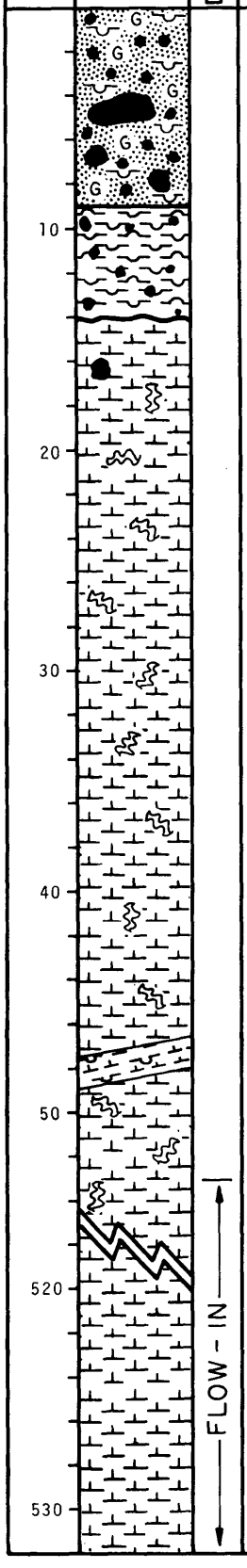
CORE CUTTER AND CATCHER (329 grams): sediment is higher in glauconite and radiolarian content than is that of overlying unit.

Bottom topography: gently sloping; on the eastern portion of the northern flank of the Maurice Ewing Bank, and near top of Bank.

*NOTE: Sediment between 280-281 cm is bagged.

Logged by: Bergen, Goldstein, Graves

ISLAS ORCADAS PC 1678-48



LATITUDE: 49°58.3′ S
LONGITUDE: 41°44.8′ W
WATER DEPTH: 1598 M, 874 FM
CORE LENGTH: 532 CM

LITHOLOGIC DESCRIPTION

0-9 cm: Glauconitic, diatomaceous sand, olive gray (5Y 3/2); sand is coarse and moderately sorted; angular, elongated pebble between 4-6 cm with a median diameter of 25 mm; rounded pebbles between 6-8 cm (18 mm), and 7-9 cm (20 mm); fine to medium pebbles up to 11 mm common throughout; sharp contact. NOTE: Smear slide biased toward fine fraction.

smear slide:	2 cm
Quartz	30
Feldspar	<1
Mica	<<1
Heavy minerals	2
Clay	2
Volcanic glass	4
Rock fragments	1
Glauconite	15
Carbonate unspecified	1
Foraminifera	3
Calcareous nannos	2
Diatoms	38
Radiolarians	2
Sponge spicules	<1
Silicoflagellates	<<1

9-14 cm: Radiolarian, diatomaceous ooze, dusky yellow (5Y 6/4); very fine to fine pebbles common throughout; sharp, irregular contact. NOTE: Smear slide biased toward fine fraction.

smear slide:	11 cm
Quartz	10
Feldspar	<1
Mica	<1
Heavy minerals	1
Clay	<1
Volcanic glass	3
Glauconite	3
Diatoms	65
Radiolarians	15
Sponge spicules	2
Silicoflagellates	1

14-532 cm: Nannofossil ooze, yellowish gray (5Y 8/1); 1 cm inclined lamina of higher diatom content between 47-49 cm; 17 mm subangular pebble between 16-17 cm; moderately bioturbated throughout; gradational change to flow-in at 53 cm.

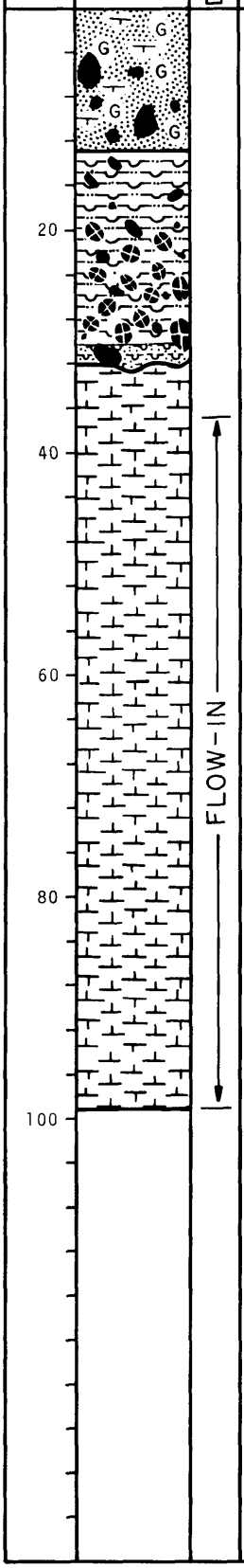
smear slide:	17 cm
Mica	<<1
Clay	<1
Volcanic glass	<<1
Carbonate unspecified	2
Foraminifera	4
Calcareous nannos	86
Diatoms	6
Radiolarians	2
Sponge spicules	<1
Silicoflagellates	<<1

CORE CUTTER AND CATCHER (225 grams): sediment is the same as that of overlying unit; flow in.

Bottom topography: gently sloping; on the eastern portion of the northern flank of the Maurice Ewing Bank, and near top of Bank.

Logged by: Humphreys, Harwood, Jones, Kaharoeddin

ISLAS ORCADAS PC 1678-49



LATITUDE: 49°47.5′ S
LONGITUDE: 41°41.4′ W
WATER DEPTH: 1708 M, 934 FM
CORE LENGTH: 99 CM

LITHOLOGIC DESCRIPTION

0-13 cm: Glauconitic, foraminiferal sand, light olive gray (5Y 5/2); sand is medium, poorly sorted; 32 mm subrounded pebble between 3-8 cm; 26 mm subrounded pebble between 9-12 cm; fine and medium pebbles common between 5-13 cm; sharp contact.

smear slide:	3 cm
Quartz	42
Feldspar	<1
Heavy minerals	2
Clay	<<1
Volcanic glass	<1
Glauconite	18
Carbonate unspecified	5
Foraminifera	23
Calcareous nannos	2
Diatoms	6
Radiolarians	2
Sponge spicules	<1

13-32 cm: Muddy, diatomaceous ooze, light olive brown (5Y 5/6); 2 cm layer of sandy, diatomaceous ooze, light olive gray (5Y 5/2), between 30-32 cm; 25 mm highly indurated sedimentary clast between 28-31 cm, composed of diatomaceous clay, olive gray (5Y 3/2); moderately indurated sedimentary clasts up to 14 mm abundant between 19-31 cm, composed of diatomaceous clay, moderate olive brown (5Y 4/4), and muddy, diatomaceous ooze, light olive brown (5Y 5/6); 12 mm discoidal pebble between 30-32 cm; medium pebbles common between 13-22 cm; fine pebbles sparsely scattered throughout; sharp, irregular contact.

smear slide:	23 cm
Quartz	23
Feldspar	1
Heavy minerals	2
Clay	10
Volcanic glass	2
Glauconite	6
Diatoms	51
Radiolarians	4
Sponge spicules	1
Silicoflagellates	<<1
Ebridians	<<1

32-99 cm: Foraminiferal, nannofossil ooze, white (N9); slightly washed along the side; flow-in between 37-99 cm. NOTE: Smear slide biased toward calcareous nannos.

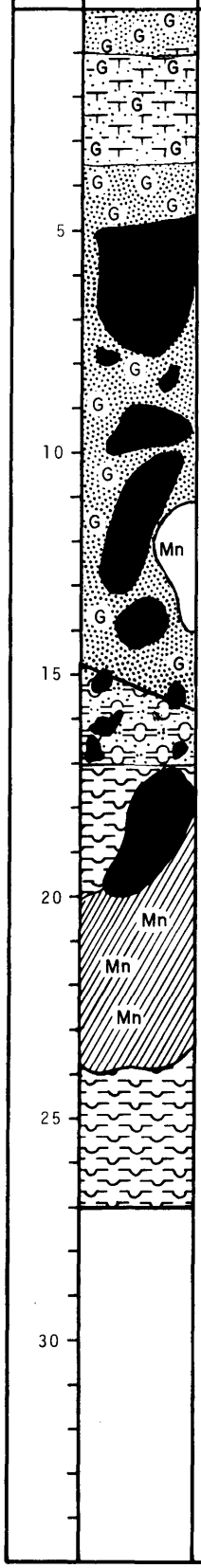
smear slide:	34 cm
Quartz	<1
Heavy minerals	<<1
Volcanic glass	1
Carbonate unspecified	2
Foraminifera	5
Calcareous nannos	91
Diatoms	<<1
Radiolarians	1
Sponge spicules	<1
Silicoflagellates	<1

CORE CUTTER AND CATCHER (184 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: flat; on the eastern portion of the northern flank of the Maurice Ewing Bank, and near top of Bank.

Logged by: Bergen, Graves, Goldstein

ISLAS ORCADAS PC 1678-50



LATITUDE: 49°43.2′ S
LONGITUDE: 41°43.0′ W
WATER DEPTH: 1726 M, 944 FM
CORE LENGTH: 27 CM

LITHOLOGIC DESCRIPTION

0-15 cm: Pebbly, glauconitic sand, moderate olive brown (5Y 4/4); sand is fine and poorly sorted; pebbles are coarse to very coarse in size; 1 cm layer of foraminiferal, glauconitic sand, light olive gray (5Y 5/2), between 0-1 cm; 2.5 cm layer of sandy, glauconitic, foraminiferal ooze, yellowish gray (5Y 7/2), between 1-4 cm; 15 mm fragment of a manganese nodule between 11-14 cm; sharp, inclined contact. NOTE: Smear slides biased toward fine fraction.

smear slides:	(layer) 1 cm	7 cm
Quartz	16	52
Feldspar	<1	<1
Heavy minerals	<1	3
Clay	3	3
Volcanic glass	1	3
Glauconite	7	25
Carbonate unspecified	2	1
Foraminifera	45	4
Calcareous nannos	10	<1
Diatoms	12	8
Radiolarians	4	1
Sponge spicules	<1	<1
Silicoflagellates	-	<<1

15-27 cm: Diatomaceous ooze, dusky yellow (5Y 6/4); micro-manganese nodules sparsely scattered between 24-26 cm; 2 cm layer of sandy, muddy, siliceous ooze, light olive brown (5Y 5/6), between 15-17 cm; 6 cm layer of manganese pavement, brownish black (5YR 2/1) between 18-24 cm; 28 mm subrounded pebble between 17-21 cm; medium pebbles abundant between 15-17 cm.

smear slide:	25 cm
Quartz	8
Feldspar	<1
Heavy minerals	<1
Clay	6
Volcanic glass	1
Glauconite	1
Foraminifera	<1
Diatoms	81
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<<1

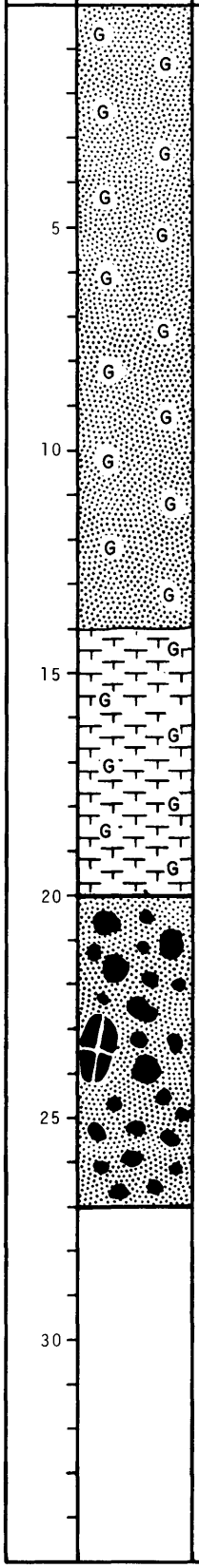
CORE CUTTER AND CATCHER (123 grams): sediment is the same as that of overlying unit.

Bottom topography: gently sloping; on the eastern portion of the northern flank of the Maurice Ewing Bank, and near top of Bank.

*NOTE: Deck-log records indicate that sediment was recovered from above the A cap (or top end of the core), and placed in a plastic bag. The lithology of this bagged sediment, however, is that of a diatomaceous ooze, clearly similar to the lithology of sediment removed from the core cutter and catcher. This indicates the possibility of the bagged sample having been incorrectly labeled aboard ship; thus, although the existence of this bag sample is noted, it is suspect with regard to its value for sampling.

Logged by: Bergen, Graves

ISLAS ORCADAS PC 1678-51



LATITUDE: 49°43.0' S WATER DEPTH: 1792 M, 980 FM

LONGITUDE: 41°36.2' W CORE LENGTH: 27 CM

LITHOLOGIC DESCRIPTION

0-20 cm: Glauconitic sand, olive gray (5Y 3/2); sand is medium and well-sorted; foraminifera abundant throughout; 6 cm layer of foraminiferal ooze, yellowish gray (5Y 7/2), between 14-20 cm, glauconite common in this layer; slightly washed along the side; sharp contact. NOTE: Smear slide at 18 cm biased toward fine fraction.

smear slides:	3 cm	(layer) 18 cm
Quartz	68	5
Feldspar	<1	<<1
Heavy minerals	2	<1
Clay	<<1	-
Volcanic glass	1	<1
Glauconite	20	5
Carbonate unspecified	<1	8
Foraminifera	9	57
Calcareous nannos	-	10
Diatoms	<1	13
Radiolarians	<1	2
Sponge spicules	<<1	<1

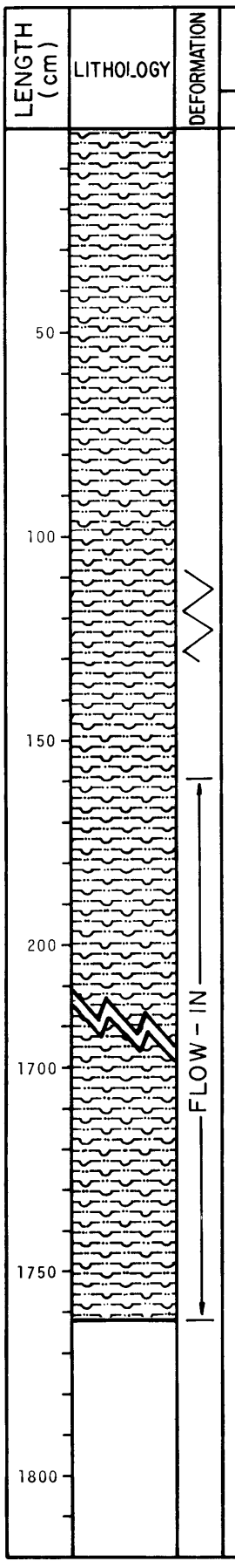
20-27 cm: Pebbly sand, olive gray (5Y 3/2), moderately sorted; sand is coarse to very coarse; pebbles are fine to very fine; glauconite sparsely scattered throughout; 14 mm sedimentary clast between 22-25 cm, composed of sandy, foraminiferal ooze, yellowish gray (5Y 8/1); medium pebbles common between 20-24 cm.

CORE CATCHER (56 grams): Fine pebbles, dark gray (N3), subrounded to subangular, poorly sorted; very minor matrix amount of foraminiferal, glauconitic sand.

Bottom topography: gently sloping; on the eastern portion of the northern flank of the Maurice Ewing Bank, and near top of Bank.

Logged by: Bergen, Graves, Kaharoeddin

ISLAS ORCADAS PC 1678-52



LATITUDE: 50°37.4′ S
LONGITUDE: 39°43.0′ W
WATER DEPTH: 3936 M, 2152 FM
CORE LENGTH: 1762 CM

LITHOLOGIC DESCRIPTION

0-1762 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); moderately disturbed (washed) between 108-131 cm; gradationally changing to flow-in at 159 cm.

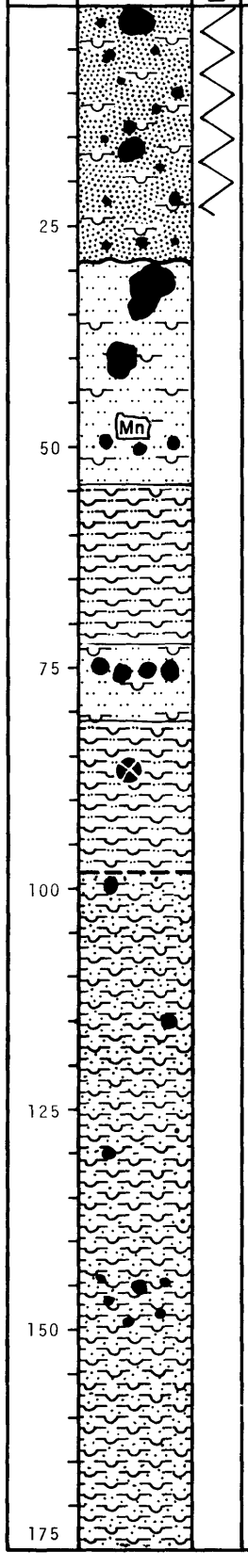
smear slide:	50 cm
Quartz	24
Feldspar	<1
Heavy minerals	1
Clay	8
Volcanic glass	1
Micro-Mn nodules	<1
Diatoms	66
Radiolarians	<<1
Sponge spicules	<1

CORE CUTTER AND CATCHER (384 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; westernmost West Georgia Basin, approximately 13 km east of the base of the eastern flank of the Maurice Ewing Bank.

Logged by: Harwood, Kaharoeddin

ISLAS ORCADAS PC 1678-55



LATITUDE: 51°45.4′ S
LONGITUDE: 34°01.5′ W
WATER DEPTH: 2533 M, 1385 FM
CORE LENGTH: 280 CM

LITHOLOGIC DESCRIPTION

0-29 cm: Diatomaceous sand, light olive gray (5Y 5/2), changing to moderate olive brown (5Y 4/4) between 24-29 cm; sand is fine and moderately sorted; sub-rounded pebbles between 0-4 cm (33 cm), and between 15-18 cm (22 mm); fine to medium pebbles common throughout; very fine pebbles abundant throughout; moderately disturbed (washed) between 0-24 cm; slightly washed along the side between 24-29 cm; sharp, irregular contact. NOTE: Smear slide biased toward the fine fraction.

smear slide:	14 cm
Quartz	50
Feldspar	2
Mica	<<1
Heavy minerals	3
Clay	2
Volcanic glass	5
Rock fragments	1
Glauconite	3
Diatoms	31
Radiolarians	3
Sponge spicules	<1

29-98 cm: Muddy, diatomaceous ooze interbedded with diatomaceous, muddy sand, as follows: muddy, diatomaceous ooze, yellowish gray (5Y 7/2), between 54-72 cm and 81-98 cm; diatomaceous muddy sand, yellowish gray (5Y 7/2) between 29-54 cm and 72-81 cm; 18 mm sedimentary clast between 85-87 cm, composed of diatomaceous, muddy sand, yellowish gray (5Y 7/2); 18 mm manganese nodule between 47-49 cm; 48 mm angular pebble between 29-36 cm; 32 mm subrounded pebble between 38-43 cm; coarse pebbles abundant between 73-77 cm, common between 48-52 cm; gradational contact. NOTE: Smear slide at 78 cm is biased toward the fine fraction.

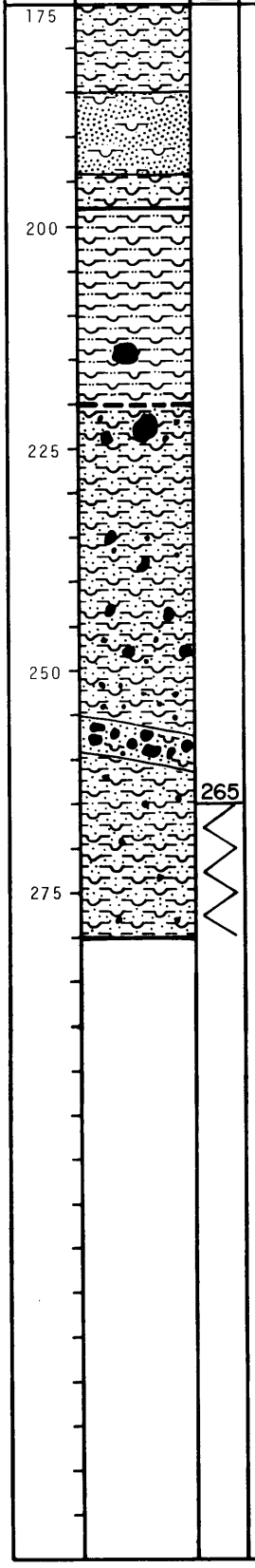
smear slides:	78 cm	92 cm
Quartz	26	12
Feldspar	<1	2
Heavy minerals	4	1
Clay	30	24
Volcanic glass	7	5
Glauconite	<<1	<1
Diatoms	30	55
Radiolarians	3	1
Sponge spicules	<<1	<1
Silicoflagellates	<<1	<<1

98-198 cm: Sandy, diatomaceous ooze, dusky yellow (5Y 6/4); sand content increases with depth between 138-198 cm; clay content decreases with depth between 98-129 cm; layer of diatomaceous sand, light olive brown (5Y 5/6), between 185-194 cm; coarse pebbles sparsely scattered between 98-148 cm; fine to medium pebbles abundant between 143-151 cm; sharp contact.

smear slides:	137 cm	(layer) 190 cm
Quartz	25	50
Feldspar	<1	1
Mica	-	<<1
Heavy minerals	1	3
Clay	2	6
Volcanic glass	2	4
Glauconite	<1	3
Diatoms	66	29
Radiolarians	4	4
Sponge spicules	<1	<1
Silicoflagellates	<<1	<<1

Logged by: Bergen, Watkins, Graves, Goldstein, Harwood

ISLAS ORCADAS PC 1678-55



LATITUDE: 51°45.4′ S
LONGITUDE: 34°01.5′ W
WATER DEPTH: 2533 M, 1385 FM
CORE LENGTH: 280 CM

LITHOLOGIC DESCRIPTION

198-220 cm: Muddy, diatomaceous ooze, dusky yellow (5Y 6/4); 29 mm subrounded pebble between 213-216 cm; slightly washed along the side; gradational contact. NOTE: Smear slide biased toward the fine fraction.

smear slide:	209 cm
Quartz	20
Feldspar	<1
Mica	<<1
Heavy minerals	<1
Clay	18
Volcanic glass	3
Glauconite	<1
Diatoms	54
Radiolarians	5
Sponge spicules	<<1
Silicoflagellates	<<1
Dinoflagellates	<<1

220-280 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); sand content varies irregularly with depth; inclined layer of diatomaceous, sandy pebbles, yellowish gray (5Y 7/2), between 255-261 cm; 32 mm subangular pebble between 220-225 cm; 10 mm subrounded pebble between 223-225 cm; coarse pebbles common between 234-249 cm; fine pebbles abundant between 252-254 cm, common between 220-225 cm, 234-237 cm, 246-250 cm, and 254-280 cm; highly disturbed (washed) between 265-280 cm; slightly washed along the side between 220-265 cm.

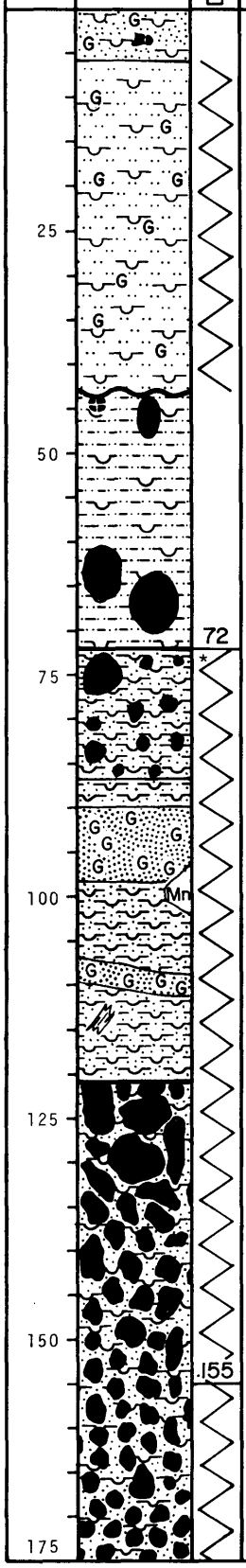
smear slide:	252 cm
Quartz	23
Feldspar	<1
Heavy minerals	1
Clay	10
Volcanic glass	3
Glauconite	<1
Diatoms	59
Radiolarians	4
Sponge spicules	<1
Silicoflagellates	<<1

CORE CUTTER AND CATCHER (274 grams): sediment is the same as that of overlying unit.

Bottom topography: moderately sloping; on the western side of the northeastern Georgia Rise.

Logged by: Bergen, Watkins, Graves, Goldstein, Harwood

ISLAS ORCADAS PC 1678-56



LATITUDE: 51°50.2' S WATER DEPTH: 2374 M, 1298 FM

LONGITUDE: 33°54.4' W CORE LENGTH: 777 CM

LITHOLOGIC DESCRIPTION

0-43 cm: Diatomaceous, muddy sand, grayish olive (10Y4/2); sand is fine and moderately well-sorted; glauconite abundant between 6-43 cm; zone of higher clay content between 6-14 cm; zone of higher sand content between 24-27 cm; layer of glauconitic, diatomaceous sand, olive gray (5Y 3/2), between 1-6 cm; 0.6 cm lamina of diatomaceous sand between 0-1 cm; 14 mm and 16 mm angular pebbles between 3-5 cm; moderately disturbed between 6-43 cm; sharp, irregular contact.

smear slides:	(layer) 4 cm	17 cm
Quartz	58	48
Feldspar	<1	1
Mica	-	<1
Heavy minerals	3	3
Clay	3	8
Volcanic glass	2	2
Glauconite	10	8
Foraminifera	<<1	-
Diatoms	20	25
Radiolarians	4	4
Sponge spicules	<1	1
Silicoflagellates	<<1	<<1

43-72 cm: Diatomaceous mud, light olive gray (5Y 5/2); zone of higher sand content between 46-53 cm; zone of lower sand content between 68-72 cm; 20 mm sedimentary clast between 43-45 cm, composed of calcareous, diatomaceous ooze, yellowish gray (5Y 7/2), soft; angular, elongated pebble with a median diameter of 35 mm between 44-48 cm; subrounded pebbles between 61-67 cm (55 mm) and 63-71 cm (68 mm); sharp contact, at the section break.

smear slide:	55 cm		
Quartz	15	Rock fragments	2
Feldspar	<1	Diatoms	36
Mica	<1	Radiolarians	2
Heavy minerals	2	Sponge spicules	<1
Clay	40	Silicoflagellates	<<1
Volcanic glass	3		

72-121 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); 15 cm layer of pebbly, sandy, diatomaceous ooze, dusky yellow (5Y 6/4), between 72-87 cm, pebbles are coarse, subrounded; 8 cm layer of fine, glauconitic sand, light olive gray (5Y 5/2), between 90-98 cm; 2 cm layer of medium to coarse glauconitic sand between 107-112 cm; 10 mm elongated wood fragment between 113-115 cm, blackish red (5R 2/2); 45 mm decomposed manganese nodule, elongated, along side of core liner between 97-102 cm, soft; 30 mm subangular pebble between 73-77 cm; moderately disturbed (washed) throughout unit; sharp contact. NOTE: Smear slide biased toward diatoms.

smear slide:	105 cm		
Quartz	15	Glauconite	2
Feldspar	<1	Diatoms	71
Mica	1	Radiolarians	2
Heavy minerals	2	Sponge spicules	<1
Clay	5	Silicoflagellates	<<1
Volcanic glass	2		

121-252 cm: Diatomaceous, sandy pebbles, yellowish gray (5Y 7/2); pebbles are medium, subrounded to subangular, and decrease in size with depth; 74 mm manganese nodules between 218-226 cm; 15 mm manganese nodule between 251-253 cm; highly disturbed (washed) between 180-218 cm, moderately disturbed (washed) between 121-180 cm and 218-252 cm; gradational contact. NOTE: Smear slides are biased toward diatoms, and do not include particles greater than 1 mm.

smear slides:	169 cm	214 cm		169 cm	214 cm
Quartz	25	27	Glauconite	3	3
Feldspar	<1	<1	Diatoms	60	59
Heavy minerals	1	<1	Radiolarians	5	3
Clay	5	7	Sponge spicules	<1	<1
Volcanic glass	1	1	Silicoflagellates	<<1	<<1
Rock fragments	<1	-			

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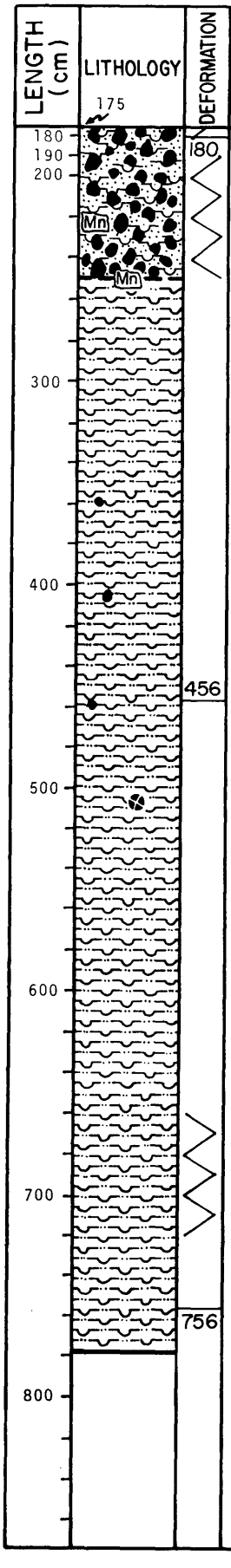

LATITUDE: 51°50.2′ S
LONGITUDE: 33°54.4′ W
WATER DEPTH: 2374 M, 1298 FM
CORE LENGTH: 777 CM

LITHOLOGIC DESCRIPTION

252-777 cm: Muddy, diatomaceous ooze, yellowish gray (5Y 7/2); 20 mm sedimentary clast between 507-510 cm, composed of sandy mud, pale red (5R 6/2), slightly compacted; angular pebbles between 361-363 cm (14 mm), 404-407 cm (22 mm), and 458-460 cm (15 mm); moderately disturbed (washed) between 660-720 cm.

smear slide:	518 cm
Quartz	25
Feldspar	1
Heavy minerals	2
Clay	8
Volcanic glass	3
Glauconite	<1
Diatoms	58
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<1

CORE CATCHER (16 grams): sediment is the same as that of overlying unit.

Bottom topography: gently sloping; on the western side of the northeastern Georgia Rise.

*NOTE: Sediment between 72-73 cm is bagged.

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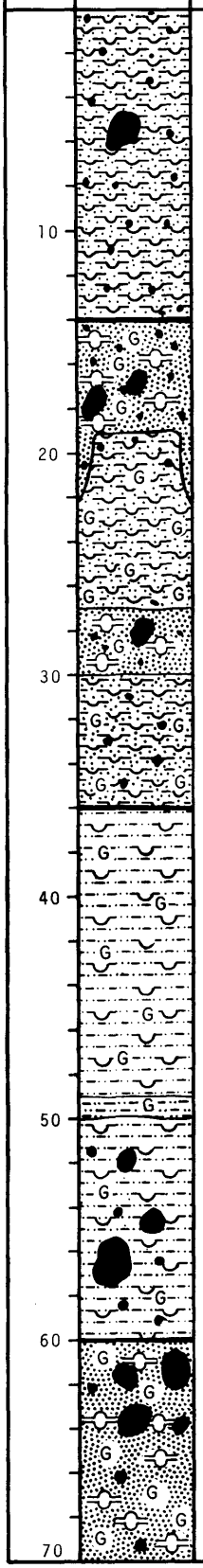

LATITUDE: 51°53.2' S
LONGITUDE: 33°48.4' W
WATER DEPTH: 2185 M, 1195 FM
CORE LENGTH: 284 CM

LITHOLOGIC DESCRIPTION

0-14 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); 23 mm subrounded pebble between 4-7 cm; fine to medium pebbles abundant throughout; slightly washed along the side; sharp contact. NOTE: Smear slide slightly biased toward fine fraction.

smear slide:	4 cm
Quartz	23
Feldspar	1
Heavy minerals	2
Clay	8
Volcanic glass	2
Glauconite	<1
Foraminifera	<1
Diatoms	61
Radiolarians	2
Sponge spicules	1

14-36 cm: Sandy, diatomaceous ooze, moderate olive brown (5Y 4/4); higher sand content than the overlying unit; glauconite common throughout; layers of radiolarian-diatomaceous sand, moderate olive brown (5Y 4/4), between 14-19 cm and 27-30 cm, and washed in along the side between 19-22 cm; subrounded pebbles between 16-18 cm (13 mm) and 16-19 cm (18 mm); 19 mm subangular pebble between 27-29 cm; fine to medium pebbles abundant between 14-21 cm; fine pebbles common between 27-36 cm; slightly washed along the side between 14-30 cm; sharp contact.

smear slide:	24 cm
Quartz	34
Feldspar	1
Heavy minerals	1
Clay	10
Volcanic glass	2
Glauconite	5
Diatoms	38
Radiolarians	8
Sponge spicules	1
Silicoflagellates	<<1

36-60 cm: Diatomaceous mud, grayish olive (10Y 4/2); glauconite common throughout; 1 cm irregular lamina of glauconitic mud between 49-50 cm; 0.3 cm inclined stringer of diatomaceous ooze between 52-54 cm; subrounded pebbles between 51-53 cm (18 mm) and 55-58 cm (28 mm); 15 mm subangular pebble between 54-56 cm; fine pebbles common between 51-60 cm; sharp contact.

smear slide:	45 cm
Quartz	41
Feldspar	2
Heavy minerals	3
Clay	18
Volcanic glass	3
Glauconite	4
Micro-Mn nodules	1
Diatoms	25
Radiolarians	1
Sponge spicules	2
Silicoflagellates	<<1

60-83 cm: Glauconitic, radiolarian-diatomaceous sand, olive gray (5Y 3/2); sand is bimodal, very fine and medium; glauconite content decreases with depth; coarse pebbles common between 60-65 cm; medium pebbles sparsely scattered throughout; sharp contact. NOTE: Smear slide biased toward fine faction.

smear slide:	67 cm
Quartz	39
Feldspar	<1
Heavy minerals	3
Clay	4
Volcanic glass	2
Glauconite	8
Diatoms	27
Radiolarians	15
Sponge spicules	2

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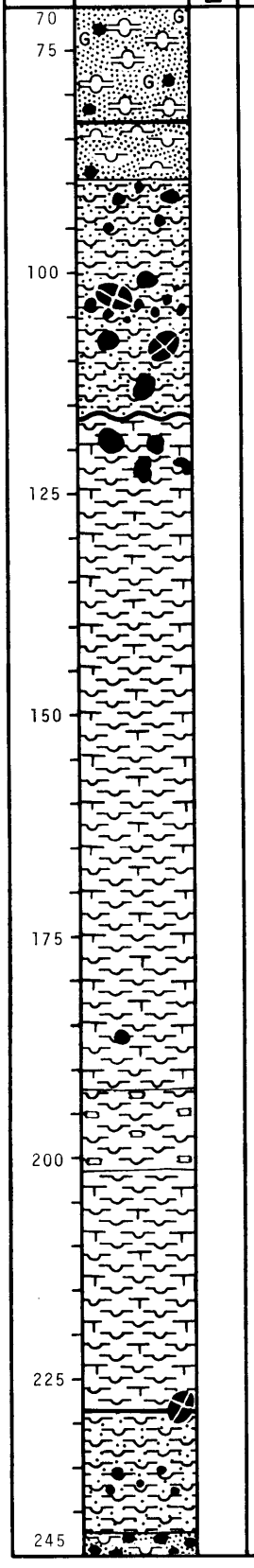

LATITUDE: 51°53.2′ S
LONGITUDE: 33°48.4′ W
WATER DEPTH: 2185 M, 1195 FM
CORE LENGTH: 284 CM

LITHOLOGIC DESCRIPTION

83-116 cm: Sandy, diatomaceous ooze, light olive gray (5Y 5/2); zone of lower sand content between 103-107 cm; zone of higher carbonate content between 110-116 cm; 6 cm layer of radiolarian, diatomaceous sand, grayish olive (10Y 4/2), between 83-89 cm; discontinuous stringers of diatomaceous ooze common between 103-108 cm; sedimentary clasts composed of diatomaceous sand, grayish olive (10Y 4/2), between 102-105 cm (28 mm) and 107-109 cm (15 mm); medium pebbles abundant between 102-104 cm; medium to coarse pebbles common between 88-95 cm, coarse pebbles sparsely scattered between 99-116 cm; slightly washed along the side between 110-116 cm; sharp, irregular contact. NOTE: Smear slide biased toward fine faction.

smear slide:	97 cm
Quartz	14
Feldspar	<1
Heavy minerals	1
Clay	4
Volcanic glass	2
Glauconite	2
Diatoms	74
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<<1

116-228 cm: Foraminiferal, diatomaceous ooze, light olive gray (5Y 6/1); zone of lower foraminiferal content between 182-192 cm; zone of higher sand content between 180-192 cm and 215-218 cm; 9 cm layer of calcareous, diatomaceous ooze, yellowish gray (5Y 7/2), between 192-201 cm; laminations rich in diatoms common between 130-175 cm; subrounded pebbles between 116-120 cm (26 mm) and 119-120 cm (10 mm); subangular pebbles between 120-122 cm (20 mm) and 186-187 cm (4 mm); moderately washed along the side between 192-214 cm; slightly washed along the side elsewhere; sharp contact.

smear slides:	133 cm	174 cm
Quartz	4	4
Feldspar	<1	-
Heavy minerals	1	-
Clay	<1	<<1
Volcanic glass	2	1
Carbonate unspecified	13	9
Foraminifera	30	28
Diatoms	50	58
Radiolarians	<1	<1
Sponge spicules	<1	<<1
Silicoflagellates	<<1	<<1

228-255 cm: Sandy, diatomaceous ooze, olive gray (5Y 4/1); 3 cm layer of diatomaceous sand, light olive gray (5Y 5/2), between 242-245 cm; 27 mm sedimentary clast between 226-229 cm, composed of diatomaceous sand, light olive gray (5Y 5/2); fine to medium pebbles abundant between 243-246 cm, common between 234-238 cm; gradational contact.

smear slide:	234 cm
Quartz	30
Feldspar	<1
Heavy minerals	2
Clay	4
Volcanic glass	6
Glauconite	<<1
Carbonate unspecified	<<1
Foraminifera	<<1
Diatoms	52
Radiolarians	6
Sponge spicules	<1
Silicoflagellates	<<1

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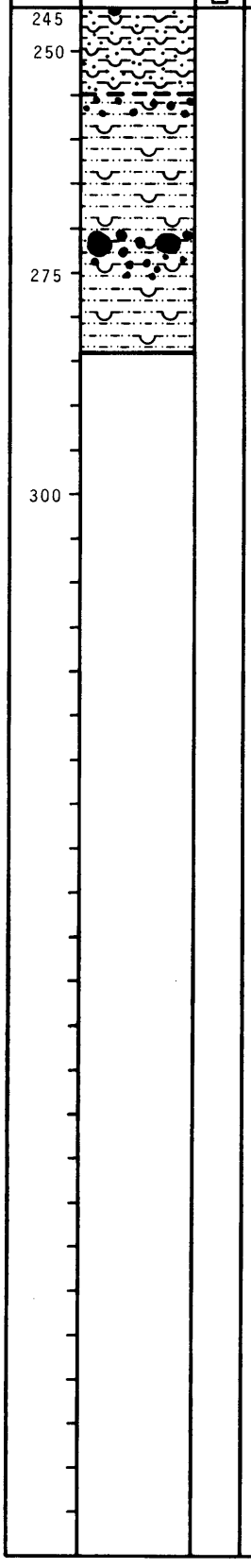


LATITUDE: 51°53.2' S
LONGITUDE: 33°48.4' W
WATER DEPTH: 2185 M, 1195 FM
CORE LENGTH: 284 CM

LITHOLOGIC DESCRIPTION

255-284 cm: Diatomaceous mud, olive gray (5Y 4/1); subrounded pebbles between 270-273 cm (10 mm and 15 mm); fine pebbles abundant between 255-257 cm and 270-276 cm.

smear slide:	265 cm
Quartz	43
Feldspar	<1
Heavy minerals	1
Clay	15
Volcanic glass	4
Glauconite	<1
Diatoms	33
Radiolarians	4
Sponge spicules	<1
Silicoflagellates	<<1

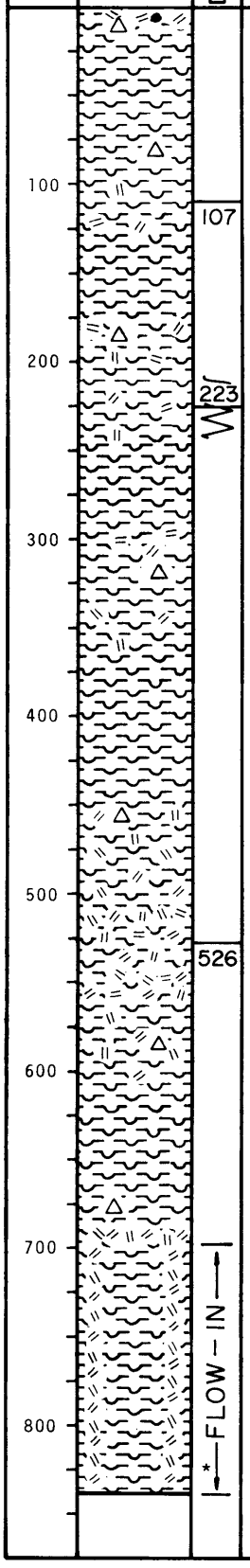
CORE CATCHER (349 grams): Diatomaceous sand, light olive gray (5Y 5/2); 23 mm and 31 mm subangular pebbles; very fine to fine pebbles common; medium pebbles sparsely scattered.

smear slide:	catcher
Quartz	36
Feldspar	<1
Mica	<<1
Heavy minerals	5
Clay	14
Volcanic glass	7
Glauconite	<1
Diatoms	30
Radiolarians	8
Sponge spicules	<1

Bottom topography: gently to moderately sloping; on the western side of the northeastern Georgia Rise.

Logged by: Bergen, Graves, Watkins, Kaharoeddin

ISLAS ORCADAS PC 1678-63



LATITUDE: 54°52.4' S
LONGITUDE: 25°00.3' W
WATER DEPTH: 4389 M, 2400 FM
CORE LENGTH: 838 CM

LITHOLOGIC DESCRIPTION

0-838 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4), gradationally changing between 0-8 cm and 571-609 cm to yellowish gray (5Y 7/2); pyrite in patches up to 1 mm sparsely scattered between 125-182 cm; lapilli up to 8 mm sparsely scattered throughout; volcanic ash abundant between 0-5 cm, 510-527 cm, 548-557 cm, and 692-695 cm, common between 106-127 cm, 180-246 cm, 299-309 cm, 341-356 cm, 460-510 cm, 538-548 cm, and 557-606 cm, sparsely scattered elsewhere; moderate staining by manganese oxide, occuring as stringers between 10-13 cm; stringers of volcanic ash between 43-45 cm, 524-526 cm, 528-530 cm and 556-557 cm; 10 mm angular pebble between 5-6 cm; 13 mm angular scoriae between 11-14 cm; highly disturbed due to implosion of core liner between 223-240 cm; slightly disturbed (washed) between 210-223 cm; slightly washed along the side between 0-210 cm; abrupt change to flow-in at 697 cm; flow-in composed of vertical striations of diatomaceous ooze and volcanic ash.

smear slides:	27 cm	213 cm	533 cm
Quartz	2	6	7
Feldspar	<<1	<1	<1
Heavy minerals	-	<<1	<<1
Clay	2	4	3
Volcanic glass	<1	2	3
Micro-Mn nodules	<<1	<1	<1
Foraminifera	<1	-	-
Diatoms	95	88	87
Radiolarians	<1	<<1	<1
Sponge spicules	-	<<1	<<1
Silicoflagellates	1	<<1	-

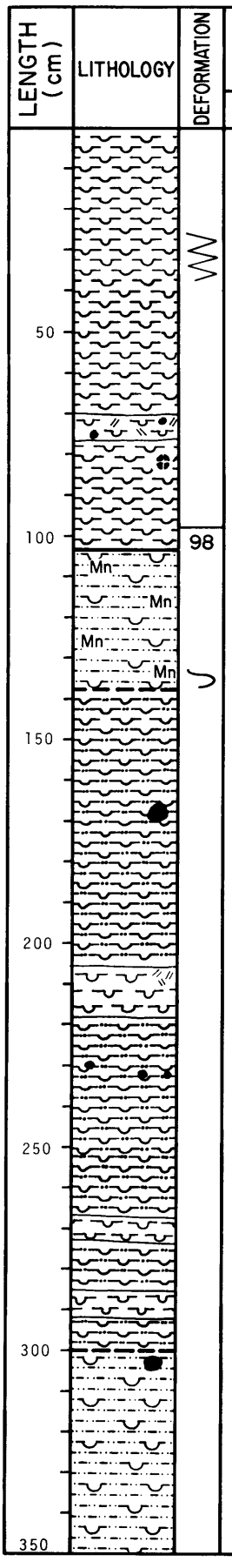
CORE CUTTER AND CATCHER (111 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: flat; approximately 3-4 km north of a promontory rising approximately 530 meters above the sea floor, and 50-65 km northeast of the South Sandwich Trench.

*NOTE: Sediment between 831-838 cm is bagged (in two bags).

Logged by: Kaharoeddin, Eggers, Humphreys

ISLAS ORCADAS PC 1678-64



LATITUDE: 54°00.5′ S
LONGITUDE: 24°11.7′ W
WATER DEPTH: 4515 M, 2469 FM
CORE LENGTH: 659 CM

LITHOLOGIC DESCRIPTION

0-103 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); 6 cm layer of ash-bearing, diatomaceous ooze, olive gray (5Y 3/2), between 70-76 cm; 5 mm sedimentary clast composed of ash-bearing, diatomaceous ooze, olive gray (5Y 3/2), between 82-83 cm; fine pebbles sparsely scattered between 70-76 cm; moderately disturbed between 26-37 cm; sharp contact.

smear slides:	4 cm	(layer) 72 cm
Quartz	11	22
Feldspar	<1	<1
Heavy minerals	1	<1
Clay	8	3
Volcanic glass	3	18
Rock fragments	<1	-
Diatoms	75	55
Radiolarians	2	2
Sponge spicules	<1	-
Silicoflagellates	<1	<1

103-138 cm: Diatomaceous mud, yellowish gray (5Y 7/2); moderately stained with manganese oxides between 107-137 cm; slightly disturbed between 133-137 cm; gradational contact.

smear slide:	110 cm
Quartz	34
Feldspar	<1
Mica	<1
Heavy minerals	5
Clay	30
Volcanic glass	4
Glauconite	<<1
Diatoms	27
Sponge spicules	<1
Silicoflagellates	<1

138-300 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); zone of higher diatom content between 218-232 cm; zones of higher volcanic ash content between 263-267 cm and 274-283 cm; layers of diatomaceous ooze, dusky yellow (5Y 6/4), between 205-218 cm, 267-273 cm, and 285-292 cm; laminae of ash-bearing, diatomaceous mud between 146-147 cm and 187-188 cm; 28 mm manganese-encrusted pebble between 166-169 cm; fine pebbles sparsely scattered between 230-233 cm; concentration of volcanic ash between 205-206 cm; gradational contact.

smear slides:	155 cm	(layer) 214 cm
Quartz	12	7
Feldspar	<1	1
Heavy minerals	<1	<1
Clay	18	2
Volcanic glass	2	3
Micro-Mn nodules	<1	-
Diatoms	66	84
Radiolarians	2	2
Sponge spicules	<1	<1
Silicoflagellates	<<1	1

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Logged by: Graves, Kaharoeddin, Harwood, Eggers

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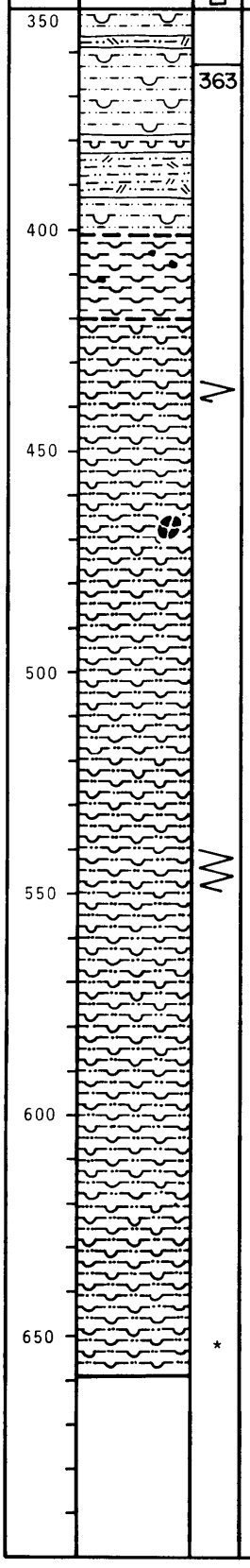


LATITUDE: 54°00.5′ S
LONGITUDE: 24°11.7′ W
WATER DEPTH: 4515 M, 2469 FM
CORE LENGTH: 659 CM

LITHOLOGIC DESCRIPTION

300-401 cm: Diatomaceous mud, light olive gray (5Y 5/2); zone of higher sand and volcanic ash content between 371-377 cm; layers of ash-bearing mud, olive gray (5Y 3/2), between 356-358 cm and 383-393 cm; 4 cm layer of diatomaceous ooze, yellowish gray (5Y 7/2), between 379-383 cm; 23 mm rounded pebble between 301-304 cm; concentrations of volcanic ash sparsely scattered between 340-342 cm; gradational contact.

smear slide:	311 cm
Quartz	13
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	38
Volcanic glass	5
Glauconite	<<1
Diatoms	40
Radiolarians	1
Sponge spicules	1
Silicoflagellates	<<1

401-420 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); 0.3 cm lamina of muddy, diatomaceous ooze between 416-417 cm; fine pebbles sparsely scattered between 406-411 cm; gradational contact.

smear slide:	418 cm
Quartz	6
Feldspar	1
Clay	15
Volcanic glass	1
Glauconite	<1
Diatoms	75
Radiolarians	2
Sponge spicules	<1

420-659 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); zone of higher sand content between 523-536 cm; 2 cm sedimentary clast composed of diatomaceous mud, light olive brown (5Y 5/6), between 466-468 cm; concentrations of sand sparsely scattered between 563-587 cm; moderately disturbed between 434-438 cm and 540-550 cm.

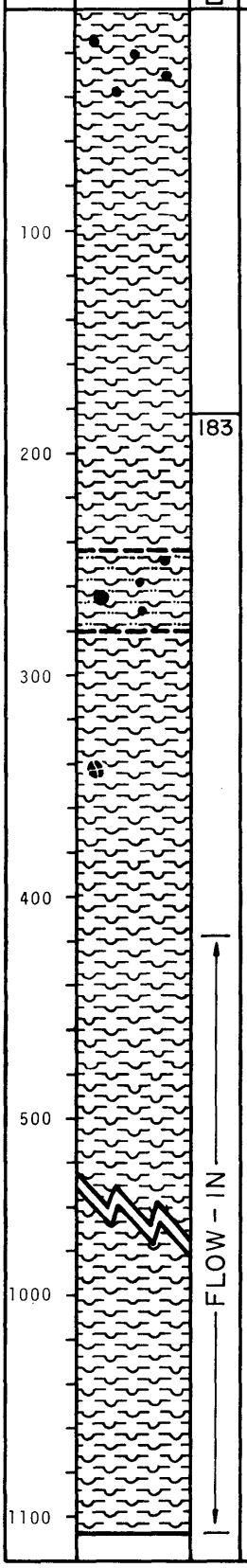
smear slides:	450 cm	(sedimentary clast) 487 cm
Quartz	20	15
Feldspar	<1	<1
Heavy minerals	2	3
Clay	20	56
Volcanic glass	3	3
Glauconite	-	<1
Diatoms	54	22
Radiolarians	1	1
Sponge spicules	<1	<1

Bottom topography: moderately sloping; east of the Islas Orcadas Fracture Zone.

*NOTE: Sediment between 644-659 cm is bagged.

Logged by: Graves, Kaharoeddin, Harwood, Eggers

ISLAS ORCADAS PC 1678-65



LATITUDE: 53°05.1′ S
LONGITUDE: 22°57.3′ W
WATER DEPTH: 4331 M, 2368 FM
CORE LENGTH: 1107 CM

LITHOLOGIC DESCRIPTION

0-243 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); zone of higher diatom content between 26-41 cm; zone of higher clay content between 162-174 cm; laminae of higher diatom content common between 105-129 cm; laminae of higher clay content common between 190-214 cm; stringers rich in manganese oxides abundant between 38-46 cm; discontinuous stringers of diatom "cotton" between 174-177 cm and 227-230 cm; fine to medium pebbles common between 13-40 cm; gradational contact.

smear slides:	7 cm	215 cm
Quartz	3	2
Feldspar	3	3
Heavy minerals	<<1	-
Clay	8	2
Volcanic glass	3	1
Diatoms	82	91
Radiolarians	1	1
Sponge spicules	<<1	-
Silicoflagellates	<<1	<1

243-280 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); 31 mm subrounded pebble between 265-270 cm; fine to medium pebbles sparsely scattered between 248-271 cm; gradational contact.

smear slide:	250 cm
Quartz	8
Feldspar	2
Heavy minerals	<1
Clay	27
Volcanic glass	2
Carbonate unspecified	6
Diatoms	55
Radiolarians	<1
Silicoflagellates	<<1

280-1107 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing to light olive gray (5Y 5/2) between 317-327 cm, 348-375 cm, and 390-397 cm, and changing abruptly to dusky yellow (5Y 6/4) between 375-378 cm and 397-409 cm; 22 mm sedimentary clast between 341-344 cm, composed of muddy, diatomaceous ooze, moderate olive brown (5Y 4/4); flow-in between 419-1107 cm.

smear slides:	297 cm	386 cm
Quartz	3	3
Feldspar	1	1
Heavy minerals	-	<1
Clay	4	<1
Volcanic glass	2	2
Diatoms	88	92
Radiolarians	2	2
Sponge spicules	-	<<1
Silicoflagellates	<<1	<1

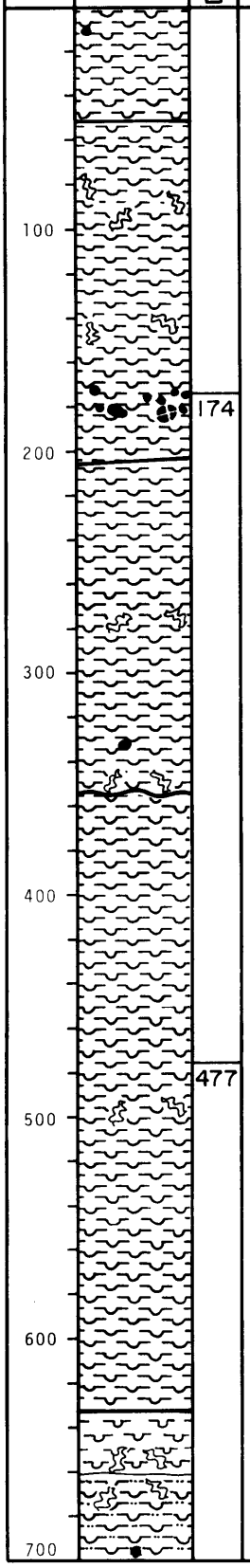
CORE CUTTER (179 grams): Diatomaceous mud, light olive gray (5Y 5/2); flow-in.

smear slide:	cutter
Quartz	10
Feldspar	<1
Heavy minerals	<1
Clay	62
Volcanic glass	2
Diatoms	25
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	<<1

Bottom topography: gently sloping; south of the Islas Orcadas Rise.

Logged by: Bergen, Graves, Kaharoeddin

ISLAS ORCADAS PC 1678-66



LATITUDE: 51°59.6′ S WATER DEPTH: 4422 M, 2418 FM

LONGITUDE: 21°42.1′ W CORE LENGTH: 1086 CM

LITHOLOGIC DESCRIPTION

0-51 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); clay content increases with depth; volcanic ash sparsely scattered throughout; 8 mm angular pebble between 10-11 cm; sharp contact.

smear slide: 43 cm

Quartz	6	Diatoms	85
Clay	8	Radiolarians	<<1
Volcanic glass	1	Sponge spicules	<<1
Micro-Mn nodules	<1		

51-205 cm: Diatomaceous ooze, dusky yellow (5Y 6/4), changing gradationally at 129 cm to light olive gray (5Y 5/2); clay content increases with depth; volcanic ash sparsely scattered throughout; 1 cm lamina of ash-bearing, diatomaceous ooze between 202-203 cm; 22 mm sedimentary clast between 183-186 cm, composed of sandy clay, dusky yellowish brown (10YR 2/2), soft; 23 mm angular, elongated pebble between 180-182 cm; very fine to medium pebbles common between 171-180 cm; moderately bioturbated between 70-98 cm and 142-153 cm; sharp, inclined contact.

smear slides:

	112 cm	143 cm		112 cm	143 cm
Quartz	5	12	Diatoms	82	79
Feldspar	-	<1	Radiolarians	2	<1
Heavy minerals	-	<<1	Sponge spicules	<<1	<<1
Clay	10	8	Silicoflagellates	<1	<<1
Volcanic glass	1	1			

205-354 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing at 309 cm to light olive gray (5Y 5/2); clay content increases with depth; volcanic ash sparsely scattered throughout; 10 mm subangular pebble between 333-334 cm; moderately bioturbated between 270-276 cm and 348-354 cm; sharp, irregular contact.

smear slide: 337 cm

Quartz	7	Volcanic glass	1
Feldspar	<<1	Diatoms	80
Clay	12	Radiolarians	<<1

354-633 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), changing gradationally at 558 cm to light olive gray (5Y 5/2); clay content increases with depth; volcanic ash sparsely scattered throughout; moderately bioturbated between 490-497 cm; sharp contact.

smear slide: 475 cm

Quartz	5	Diatoms	87
Feldspar	<1	Radiolarians	3
Clay	5	Sponge spicules	<1
Volcanic glass	<1	Silicoflagellates	<1

633-730 cm: Muddy, diatomaceous ooze, grayish olive (10Y 4/2); layer of diatomaceous ooze, yellowish gray (5Y 7/2) between 633-661 cm; clay content increases with depth; 40 mm sedimentary clast between 720-725 cm, composed of sandy clay, moderate olive brown (5Y 4/4), soft; subangular pebbles between 699-700 cm (9 mm), and between 711-712 cm (6 mm); subrounded pebbles between 713-714 cm (8 mm), and between 724-725 cm (7 mm); moderately bioturbated between 650-674 cm; sharp, irregular contact.

smear slide: 676 cm

Quartz	6	Diatoms	62
Feldspar	<<1	Radiolarians	1
Clay	28	Sponge spicules	<1
Volcanic glass	2	Silicoflagellates	<<1
Carbonate unspecified	1		

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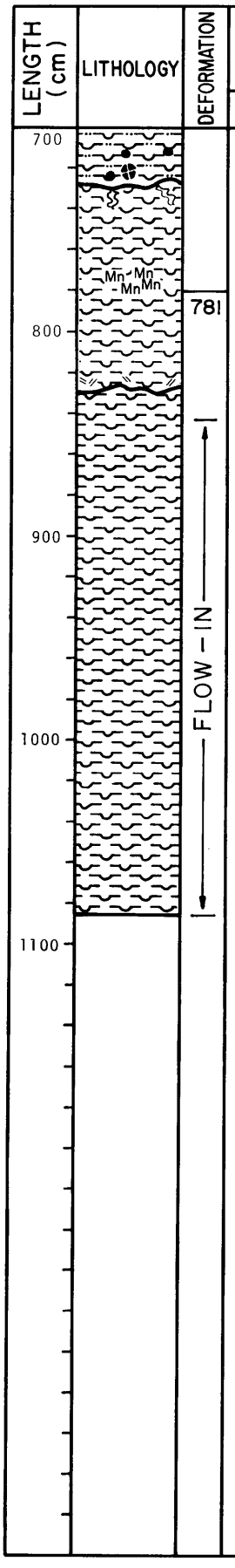
Logged by: Humphreys, Eggers, Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-66



LATITUDE: 51°59.6′ S WATER DEPTH: 4422 M, 2418 FM

LONGITUDE: 21°42.1′ W CORE LENGTH: 1086 CM

LITHOLOGIC DESCRIPTION

730-829 cm: Diatomaceous ooze, light olive gray (5Y 5/2); clay content increases with depth; concentration of micro-manganese nodules between 777-780 cm; concentration of volcanic ash between 822-823 cm; volcanic ash sparsely scattered throughout; moderately bioturbated between 730-734 cm; sharp, irregular contact.

smear slide:	772 cm
Quartz	3
Feldspar	<1
Heavy minerals	<<1
Clay	3
Volcanic glass	<1
Micro-Mn nodules	<<1
Diatoms	92
Radiolarians	2

829-1086 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash sparsely scattered throughout; abrupt change to flow-in at 843 cm.

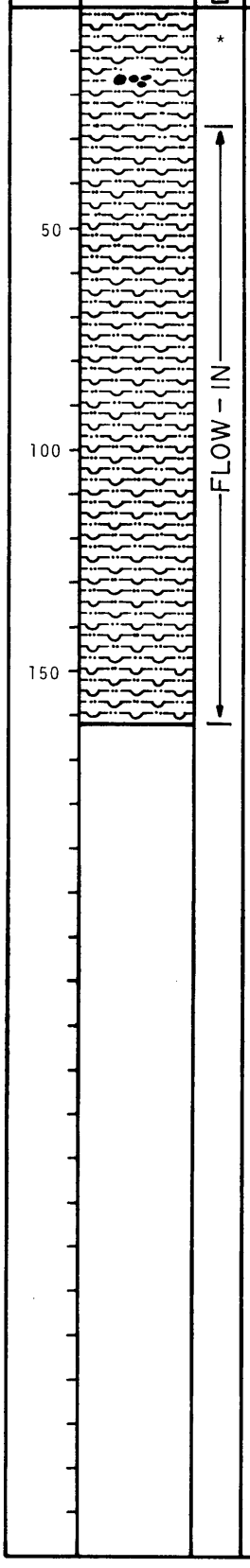
smear slide:	833 cm
Quartz	6
Heavy minerals	<<1
Clay	2
Volcanic glass	2
Micro-Mn nodules	<1
Diatoms	87
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<1

CORE CUTTER AND CATCHER (250 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: moderately sloping; on the upper, northern wall of what appears to be a new fracture zone east of the Islas Orcadas Fracture Zone.

Logged by: Humphreys, Eggers, Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-67



LATITUDE: 51°26.4′ S
LONGITUDE: 22°53.4′ W
WATER DEPTH: 4588 M, 2509 FM
CORE LENGTH: 162 CM

LITHOLOGIC DESCRIPTION

0-162 cm: Muddy, diatomaceous ooze, pale olive (10Y 6/2); concentration of manganese-coated pebbles (up to 14 mm) between 15-17cm; micro-manganese nodules sparsely scattered throughout; abruptly changing to flow-in at 27 cm.

smear slide:	25 cm
Quartz	15
Clay	15
Diatoms	65
Radiolarians	5
Silicoflagellates	<1

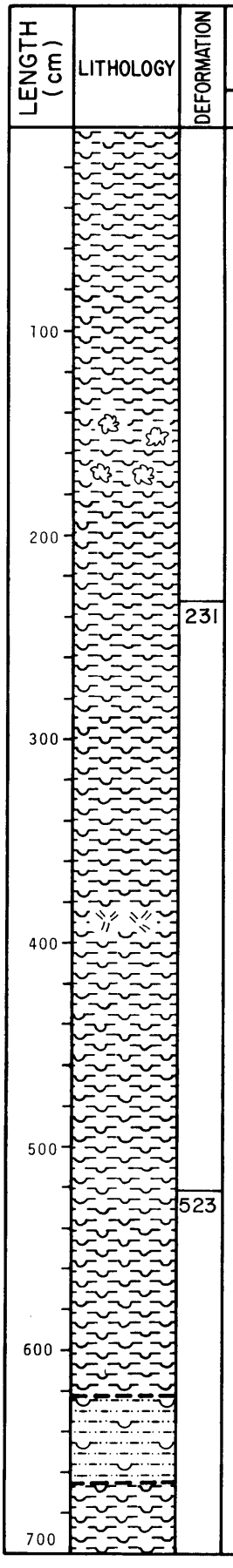
CORE CUTTER AND CATCHER (212 grams): sample recovery consists of a highly fractured pebble (median diameter of 57 mm) encrusted with manganese oxide.

Bottom topography: very gently sloping; on an abyssal plain approximately 70 km east of the Islas Orcadas Rise.

*NOTE: Sediment between 0-15 cm is bagged (in two bags).

Logged by: Harwood, Kaharoeddin, Humphreys

ISLAS ORCADAS PC 1678-68



LATITUDE: 51°04.3' S
LONGITUDE: 20°38.8' W
WATER DEPTH: 4422 M, 2418 FM
CORE LENGTH: 1741 CM

LITHOLOGIC DESCRIPTION

0-622 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); zones of higher clay and silt content between 0-89 cm, 159-165 cm, 187-196 cm, 352-380 cm, and 469-622 cm, corresponding to a change in color to light olive gray (5Y 5/2); zone containing sparsely scattered carbonate between 431-464 cm; stringers up to 0.7 cm of diatomaceous mud, olive gray (5Y 4/1), between 502-504 cm and 562-563 cm; discontinuous stringers stained by manganese oxides common between 528-540 cm; concentrations of volcanic ash between 387-391 cm; slightly mottled between 140-155 cm and 166-175 cm; gradational contact.

smear slides:	(zone) 34 cm	128 cm	307 cm	(zone) 577 cm
Quartz	6	2	2	12
Feldspar	1	1	<1	<1
Heavy minerals	<<1	<<1	-	<<1
Clay	12	2	<1	5
Volcanic glass	1	<1	<1	<1
Micro-Mn nodules	<<1	<<1	-	<1
Diatoms	80	94	96	83
Radiolarians	<1	1	1	<1
Sponge spicules	-	-	<<1	-
Silicoflagellates	<<1	<<1	1	<<1

622-664 cm: Diatomaceous mud, light olive gray (5Y 5/2); gradational contact.

smear slide:	632 cm
Quartz	18
Feldspar	1
Heavy minerals	1
Clay	32
Volcanic glass	2
Diatoms	46
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<<1

664-1082 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); zones of higher clay and silt content between 664-737 cm, 797-812 cm, 853-897 cm, and 986-1007 cm, corresponding to a change in color to light olive gray (5Y 5/2); 1.2 cm layer of volcanic ash, moderate olive brown (5Y 4/4), between 1017-1019 cm; stringers of ash-bearing, muddy, diatomaceous ooze, olive gray (5Y 4/1), abundant between 805-812 cm; 17 mm subangular pebble between 1024-1026 cm; gradational contact.

smear slides:	(zone) 711 cm	755 cm	(zone) 866 cm	955 cm
Quartz	9	2	5	3
Feldspar	2	1	2	<1
Heavy minerals	<1	<<1	<1	-
Clay	6	<1	20	1
Volcanic glass	1	<1	1	-
Micro-Mn nodules	-	<<1	<<1	-
Diatoms	82	96	72	93
Radiolarians	<1	<1	<<1	2
Sponge spicules	-	-	-	<<1
Silicoflagellates	<<1	1	<<1	1

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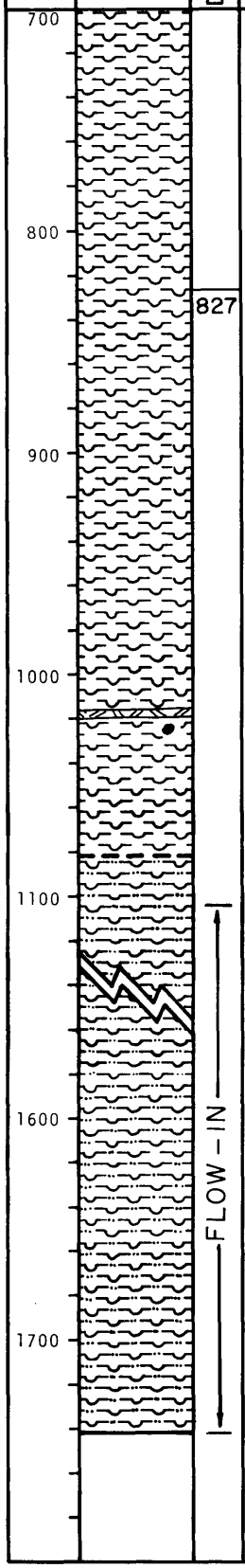
Logged by: Bergen, Harwood, Kaharoeddin

ISLAS ORCADAS PC 1678-68



LATITUDE: 51°04.3′ S
LONGITUDE: 20°38.8′ W
WATER DEPTH: 4422 M, 2418 FM
CORE LENGTH: 1741 CM

LITHOLOGIC DESCRIPTION

1082-1741 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); gradational change to flow-in at 1106 cm; flow-in between 1106-1741 cm.

smear slide:	1085 cm
Quartz	14
Feldspar	<1
Heavy minerals	<1
Clay	18
Volcanic glass	2
Diatoms	65
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	<<1

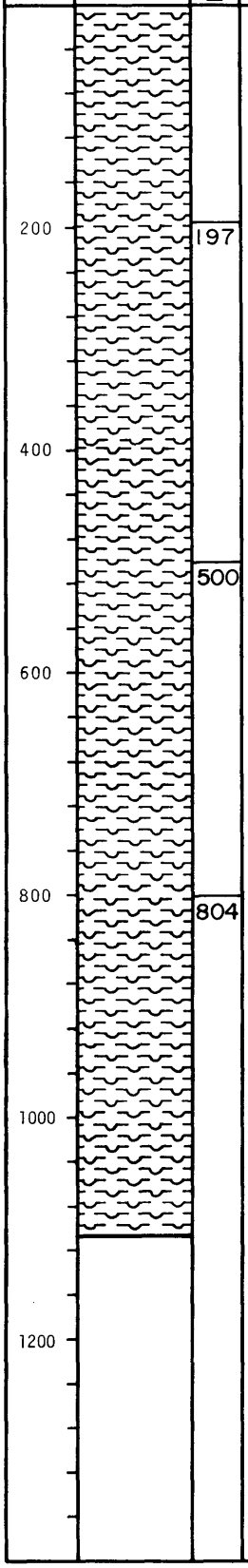
CORE CUTTER AND CATCHER (120 grams): Diatomaceous ooze, light olive gray (5Y 5/2); flow-in.

smear slide:	c/c
Quartz	5
Feldspar	1
Heavy minerals	<<1
Clay	2
Volcanic glass	1
Micro-Mn nodules	<<1
Diatoms	89
Radiolarians	2
Sponge spicules	<<1
Silicoflagellates	<<1

Bottom topography: flat; abyssal plain.

Logged by: Bergen, Harwood, Kaharoeddin

ISLAS ORCADAS PC 1678-70



LATITUDE: 49°59.8′ S
LONGITUDE: 19°25.5′ W
WATER DEPTH: 4214 M, 2304 FM
CORE LENGTH: 1105 CM

LITHOLOGIC DESCRIPTION

0-1105 cm: Diatomaceous ooze, light olive gray (5Y 5/2); micro-manganese nodules sparsely scattered throughout; small concentrations (less than 1 mm) of micro-manganese nodules sparsely scattered throughout; sediment highly stained by manganese oxides between 5-7 cm; zones containing sparsely scattered carbonate between 0-5 cm and 7-9 cm, corresponding to a change in color to yellowish gray (5Y 7/2); discontinuous stringers of diatomaceous mud, medium dark gray (N4), common between 573-581 cm.

smear slides:	(zone) 2 cm	145 cm	373 cm	945 cm
Quartz	3	4	5	7
Feldspar	1	2	1	1
Heavy minerals	-	-	<<1	<<1
Clay	6	8	4	15
Volcanic glass	2	<1	<1	<1
Micro-Mn nodules	-	2	<1	<1
Carbonate unspecified	1	-	-	-
Diatoms	85	84	90	77
Radiolarians	2	<1	<1	<1
Sponge spicules	-	<<1	-	<<1
Silicoflagellates	<1	<<1	<<1	<1

CORE CATCHER (3 grams): sediment is the same as that of overlying unit.

Bottom topography: flat; abyssal plain.

Logged by: Bergen, Graves

ISLAS ORCADAS PC 1678-72

LENGTH (cm)	LITHOLOGY	DEFORMATION

LATITUDE: 49°01.5′ S WATER DEPTH: 4042 M, 2210 FM

LONGITUDE: 18°23.1′ W CORE LENGTH: BAG SAMPLE

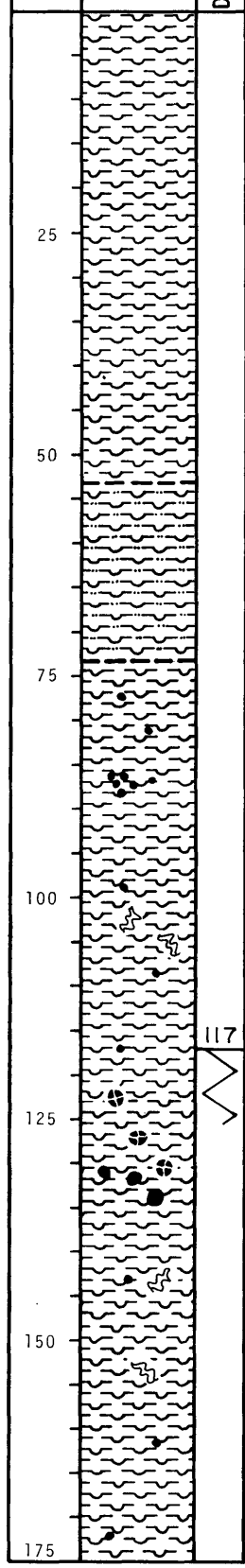
LITHOLOGIC DESCRIPTION

NOTE: The objective of the coring attempt at this station was to core a sediment pocket immediately north of a steeply sloping basement scarp having a relief of approximately 550 meters above the sea floor. Drift of the ship, caused by strong winds and currents, resulted in the corer being dropped onto the upper flank of the scarp, hitting manganese pavement and badly damaging the core cutter. Some sediment was recovered from the core liner (424 grams) and from the core cutter and catcher (41 grams), both amounts being bagged separately. The sediment consists of manganese pavement, black (N1), and in the form of fragments ranging in size from <1 mm to 40 mm.

Bottom topography: steeply sloping; in a region of undulating topography with occasional basement peaks projecting through a generally thin sediment cover (less than 300 meters); southwest of the Mid-Atlantic Ridge.

Logged by: Cassidy

ISLAS ORCADAS PC 1678-73



LATITUDE: 48°24.6' S
LONGITUDE: 17°55.1' W
WATER DEPTH: 3877 M, 2120 FM
CORE LENGTH: 1030 CM

LITHOLOGIC DESCRIPTION

0-53 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash sparsely scattered throughout; zones of higher diatom content between 14-24 cm and 30-32 cm; laminae (up to 0.4 cm) of higher diatom content common between 7-14 cm and 26-53 cm; discontinuous stringers of diatom "cotton", yellowish gray (5Y 8/1), between 40-42 cm (8 mm) and 46-47 cm (4 mm); slightly washed along the side between 0-30 cm; gradational contact.

smear slide:	(zone) 18 cm
Quartz	5
Feldspar	<1
Heavy minerals	<1
Clay	3
Volcanic glass	1
Diatoms	88
Radiolarians	3
Silicoflagellates	<1

53-73 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash sparsely scattered throughout; stringers of diatomaceous ooze, yellowish gray (5Y 7/2), between 55-56 cm (4 mm) and 66-67 cm (3 mm); slightly washed along the side between 60-64 cm; gradational contact.

smear slide:	58 cm
Quartz	7
Feldspar	1
Heavy minerals	<1
Clay	25
Volcanic glass	2
Glauconite	<1
Diatoms	64
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	<<1

73-241 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing to grayish orange (10YR 7/4) between 158-177 cm and 192-213 cm; volcanic ash sparsely scattered throughout; zones of higher diatom content between 73-85 cm, 109-124 cm, 158-177 cm and 192-213 cm; slightly laminated between 229-241 cm; stringers of ash-bearing, diatomaceous ooze between 90-91 cm; stringers of diatom "cotton" between 155-157 cm and 162-164 cm; sedimentary clasts (up to 18 mm) common between 122-134 cm, composed of glauconitic,muddy diatomaceous ooze, light olive brown (5Y 5/6); 16 mm sedimentary clast between 219-221 cm, composed of glauconitic, muddy, diatomaceous ooze, light olive brown (5Y 5/6); concentration of fine to very fine pebbles between 86-88 cm; very fine pebbles sparsely scattered throughout; two 10 mm subrounded pebbles between 130-132 cm; 18 mm subrounded pebble between 133-135 cm; slightly bioturbated between 100-107 cm, 142-156 cm, and 176-203 cm; highly disturbed between 117-126 cm; gradational contact.

smear slide:	(zone) 166 cm
Quartz	2
Feldspar	<1
Heavy minerals	<1
Clay	3
Volcanic glass	1
Diatoms	91
Radiolarians	3
Silicoflagellates	<1

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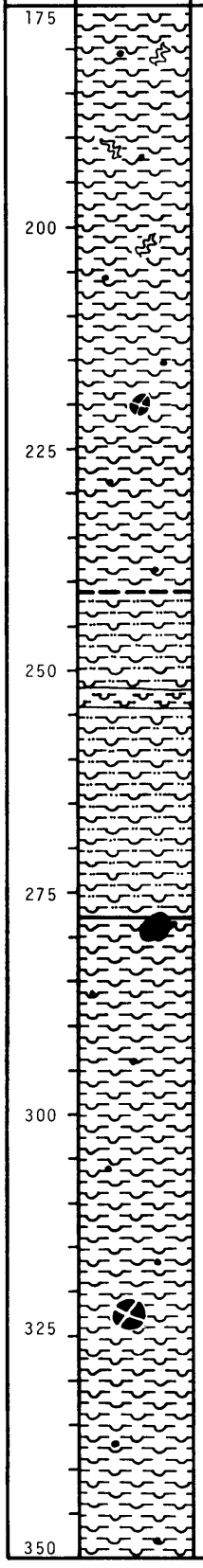
Logged by: Graves, Bergen

ISLAS ORCADAS PC 1678-73



LATITUDE: 48°24.6′ S WATER DEPTH: 3877 M, 2120 FM
LONGITUDE: 17°55.1′ W CORE LENGTH: 1030 CM

LITHOLOGIC DESCRIPTION

241-278 cm: Muddy, diatomaceous ooze, light olive gray (5Y 6/1); volcanic ash sparsely scattered throughout; 2 cm layer of diatomaceous ooze, yellowish gray (5Y 7/2), between 252-254 cm; laminae of diatomaceous ooze common throughout; sharp contact.

smear slide:	244 cm
Quartz	12
Feldspar	<1
Mica	<1
Heavy minerals	1
Clay	23
Volcanic glass	1
Diatoms	62
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	<<1

278-471 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing to light olive gray (5Y 6/1) between 300-322 cm and 343-352 cm; volcanic ash sparsely scattered throughout; zones of higher mud content between 300-322 cm and 343-352 cm; 6 cm layer of muddy, diatomaceous ooze, light olive gray (5Y 6/1), between 381-387 cm; laminae of higher diatom content common throughout; sedimentary clasts between 322-325 cm (30 mm) and 352-357 cm (50 mm), composed of glauconitic, muddy, diatomaceous ooze, light olive brown (5Y 5/6), slightly indurated; concentrations of manganese nodules (up to 10 mm) along the side between 361-369 cm and 369-374 cm; fine pebbles sparsely scattered between 286-395 cm; 40 mm subrounded pebble between 277-281 cm; sharp contact.

smear slides:	(zone) 314 cm	336 cm	(layer) 386 cm	407 cm
Quartz	12	6	16	4
Feldspar	<1	<1	1	<1
Heavy minerals	1	<<1	2	<<1
Clay	8	5	25	2
Volcanic glass	1	<1	1	<1
Glauconite	1	<<1	-	-
Diatoms	75	85	50	88
Radiolarians	2	4	5	6
Sponge spicules	-	<<1	-	-
Silicoflagellates	<1	<<1	-	<<1

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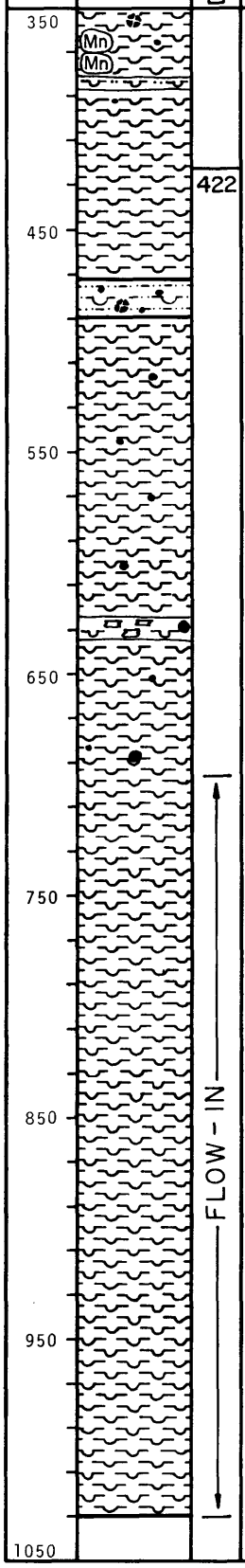
Logged by: Graves, Bergen

ISLAS ORCADAS PC 1678-73



LATITUDE: 48°24.6′ S
LONGITUDE: 17°55.1′ W
WATER DEPTH: 3877 M, 2120 FM
CORE LENGTH: 1030 CM

LITHOLOGIC DESCRIPTION

471-489 cm: Diatomaceous mud, light olive gray (5Y 6/1); 10 mm sedimentary clast between 484-486 cm, composed of clay, dark yellowish brown (10YR 4/2), highly indurated; fine pebbles common throughout; sharp contact.

smear slide:	478 cm
Quartz	15
Feldspar	<1
Heavy minerals	2
Clay	34
Volcanic glass	2
Glauconite	<1
Diatoms	45
Radiolarians	2
Sponge spicules	<<1
Silicoflagellates	<1

489-1030 cm: Diatomaceous ooze, light olive gray (5Y 6/1); increased carbonate content between 499-679 cm; layer of diatomaceous-calcareous ooze, yellowish gray (5Y 7/2), between 624-633 cm; laminae of higher diatom content common between 489-580 cm; stringers of diatom "cotton" sparsely scattered between 496-578 cm; 25 mm subrounded pebble between 628-631 cm; 15 mm subrounded pebble between 688-690 cm; fine to very fine pebbles sparsely scattered throughout; gradational change to flow-in at 695 cm.

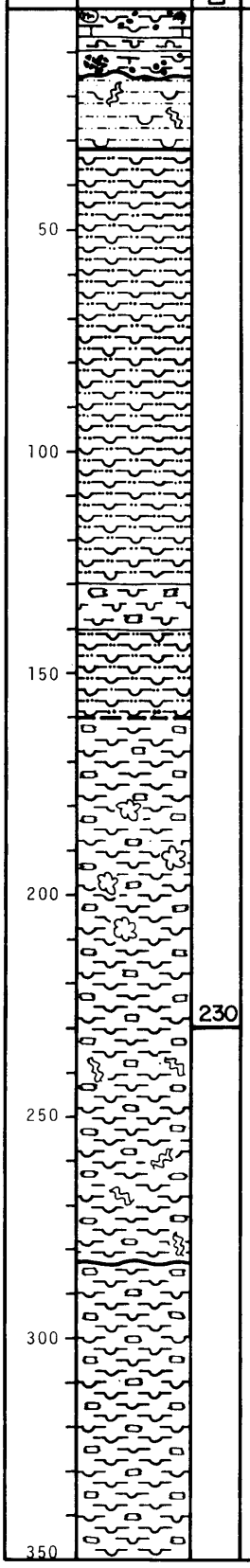
smear slides:	587 cm	(layer) 626 cm
Quartz	2	1
Feldspar	<1	-
Heavy minerals	<<1	<<1
Clay	10	6
Volcanic glass	<1	<1
Carbonate unspecified	2	17
Foraminifera	<<1	32
Diatoms	83	40
Radiolarians	3	2
Sponge spicules	-	<1
Silicoflagellates	<1	2

CORE CUTTER AND CATCHER (294 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: moderately sloping; southwest of the Mid-Atlantic Ridge near the basement transition from abyssal plain to the lowermost ridge flank.

Logged by: Graves, Bergen

ISLAS ORCADAS PC 1678-76



LATITUDE: 47°10.1′ S
LONGITUDE: 16°17.6′ W
WATER DEPTH: 3312 M, 1811 FM
CORE LENGTH: 1148 CM

LITHOLOGIC DESCRIPTION

0-15 cm: Foraminiferal, diatomaceous ooze, yellowish gray (5Y 7/2); layer of radiolarian, diatomaceous ooze, grayish orange (10 YR 7/4), between 7-9 cm; fragmented sedimentary clasts up to 2 mm between 11-15 cm, composed of diatomaceous ooze, dusky yellow (5Y 6/4), coated with manganese oxides, slightly indurated; 19 mm manganese nodule between 0-2 cm; 25 mm subangular pebble between 0-3 cm; fine pebbles coated with manganese oxides common between 13-15 cm; very fine pebbles sparsely scattered throughout; sharp, irregular contact. NOTE: Smear slide at 14 cm biased toward the fine fraction.

smear slides:	(layer) 8 cm	14 cm		(layer) 8 cm	14 cm
Quartz	8	10	Foraminifera	1	18
Feldspar	<<1	<1	Calcareous nannos	-	<1
Heavy minerals	<<1	<1	Diatoms	65	46
Clay	3	15	Radiolarians	21	7
Volcanic glass	2	2	Sponge spicules	<1	<1
Glauconite	<<1	<1	Silicoflagellates	<<1	<1
Carbonate unspecified	<1	2			

15-32 cm: Diatomaceous mud, yellowish gray (5Y 7/2); slightly bioturbated between 18-27 cm; sharp contact.

smear slide:	25 cm		
Quartz	8	Micro-Mn nodules	<1
Feldspar	<1	Diatoms	41
Heavy minerals	<1	Radiolarians	1
Clay	50	Silicoflagellates	<1
Volcanic glass	<1		

32-160 cm: Muddy, diatomaceous ooze, dark yellowish brown (10YR 4/2), gradationally changing at 37 cm to light olive gray (5Y 5/2), gradationally changing to yellowish gray (5Y 7/2) between 130-140 cm; layer of calcareous-diatomaceous ooze between 130-140 cm; volcanic ash sparsely scattered between 80-100 cm; gradational contact.

smear slides:	48 cm	(layer) 136 cm		48 cm	136 cm
Quartz	12	5	Foraminifera	-	20
Feldspar	1	<<1	Calcareous nannos	-	3
Heavy minerals	<1	<1	Diatoms	61	44
Clay	22	5	Radiolarians	2	8
Volcanic glass	<1	-	Sponge spicules	-	<1
Micro-Mn nodules	2	<1	Silicoflagellates	<<1	<<1
Carbonate unspecified	-	15			

160-283 cm: Calcareous, diatomaceous ooze, light olive gray (5Y 5/2), gradationally changing to yellowish gray (5Y 7/2) at 225 cm; slightly mottled between 180-210 cm; volcanic ash sparsely scattered between 160-237 cm; slightly bioturbated between 237-283 cm; sharp, irregular contact.

smear slide:	230 cm		
Quartz	2	Calcareous nannos	<1
Clay	1	Diatoms	60
Micro-Mn nodules	2	Radiolarians	6
Carbonate unspecified	16	Sponge spicules	<1
Foraminifera	13	Silicoflagellates	<1

283-430 cm: Calcareous-diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing to light olive gray (5Y 5/2) at 380 cm; carbonate content decreases with depth; volcanic ash sparsely scattered between 360-385 cm; 23 mm angular pebble between 393-396 cm; gradational contact.

smear slides:	290 cm	423 cm		290 cm	423 cm
Quartz	<1	2	Foraminifera	23	12
Feldspar	-	<<1	Calcareous nannos	<1	<1
Heavy minerals	-	<1	Diatoms	49	44
Clay	<1	8	Radiolarians	10	8
Glauconite	-	<1	Sponge spicules	<1	-
Micro-Mn nodules	-	1	Silicoflagellates	<1	<1
Carbonate unspecified	18	25			

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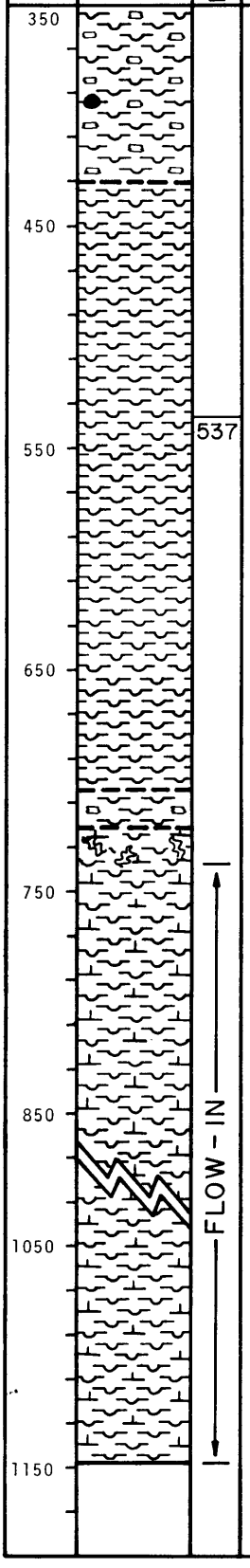
Logged by: Humphreys, Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-76

LATITUDE: 47°10.1' S
LONGITUDE: 16°17.6' W
WATER DEPTH: 3312 M, 1811 FM
CORE LENGTH: 1148 CM



LITHOLOGIC DESCRIPTION

430-704 cm: Diatomaceous ooze, light olive gray (5Y 5/2); increasing clay content with depth; volcanic ash sparsely scattered throughout; gradational contact.

smear slides:	529 cm	603 cm
Quartz	4	5
Feldspar	1	<1
Mica	<<1	-
Heavy minerals	<1	<1
Clay	8	7
Volcanic glass	2	1
Micro-Mn nodules	<1	<1
Carbonate unspecified	5	8
Foraminifera	4	1
Calcareous nannos	<<1	-
Diatoms	68	75
Radiolarians	8	3
Sponge spicules	<<1	<<1
Silicoflagellates	<<1	<<1

704-722 cm: Calcareous, diatomaceous ooze, light olive gray (5Y 5/2), changing abruptly between 709-711 cm to grayish olive (10Y 4/2), and between 714-716 cm to greenish gray (5GY 6/1); volcanic ash sparsely scattered between 704-712 cm; gradational contact.

smear slides:	706 cm	714 cm
Quartz	3	4
Feldspar	-	<1
Heavy minerals	-	<1
Clay	4	<1
Volcanic glass	1	-
Micro-Mn nodules	1	1
Carbonate unspecified	15	15
Foraminifera	15	12
Calcareous nannos	<1	<1
Diatoms	56	62
Radiolarians	5	6
Sponge spicules	<1	-
Silicoflagellates	<1	<1

722-1148 cm: Nannofossil-diatomaceous ooze, yellowish gray (5Y 8/1); volcanic ash sparsely scattered between 722-740 cm; moderately bioturbated between 723-740 cm; gradational change to flow-in at 740 cm.

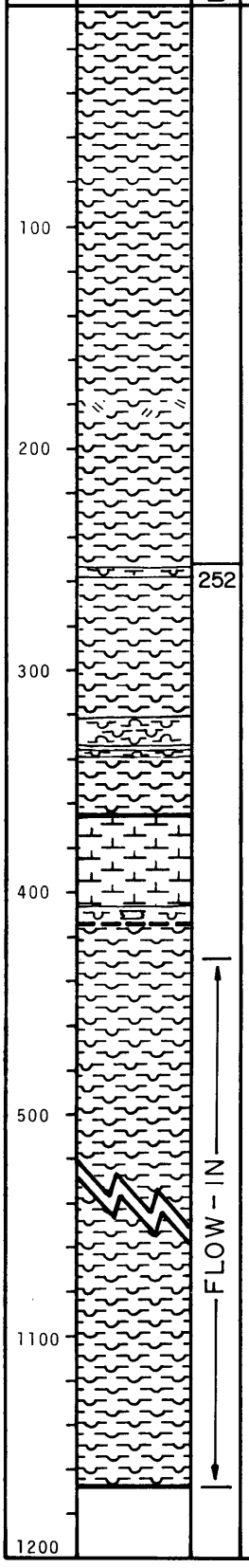
smear slide:	730 cm
Quartz	<1
Clay	2
Volcanic glass	<1
Carbonate unspecified	8
Foraminifera	10
Calcareous nannos	35
Diatoms	43
Radiolarians	2
Sponge spicules	<<1
Silicoflagellates	<<1

CORE CUTTER AND CATCHER (286 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; southwest of the Mid-Atlantic Ridge crest.

Logged by: Humphreys, Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-80



LATITUDE: 47°57.0′ S WATER DEPTH: 3102 M, 1696 FM

LONGITUDE: 13°01.4′ W CORE LENGTH: 1167 CM

LITHOLOGIC DESCRIPTION

0-365 cm: Diatomaceous ooze, light olive gray (5Y 5/2); moderate olive brown (5Y 4/4) between 343-348 cm, and yellowish gray (5Y 7/2) between 0-4 cm, 42-55 cm, 206-235 cm, and 334-343 cm; volcanic ash abundant between 179-188 cm, sparsely scattered between 0-179 cm and 188-365 cm; zones containing carbonate between 0-4 cm, 42-55 cm, and 206-235 cm; layers of radiolarian, diatomaceous ooze, yellowish gray (5Y 7/2), between 321-334 cm (13 cm) and 336-338 cm (2 cm); 2 cm layer of foraminiferal-diatomaceous ooze, yellowish gray (5Y 7/2), between 255-258 cm; sharp contact.

smear slides:	95 cm	169 cm	(zone) 211 cm	356 cm
Quartz	1	2	3	4
Feldspar	<1	<<1	<<1	1
Heavy minerals	<<1	<<1	<<1	<<1
Clay	2	1	<1	5
Volcanic glass	<1	1	<1	<1
Micro-Mn nodules	<<1	<<1	-	-
Carbonate unspecified	-	<<1	3	<1
Foraminifera	-	-	<<1	-
Diatoms	97	91	88	87
Radiolarians	<1	5	6	3
Sponge spicules	-	<<1	-	<<1
Silicoflagellates	<<1	<1	<1	<1

365-414 cm: Nannofossil ooze, white (N9); 6 cm layer of calcareous, diatomaceous ooze, yellowish gray (5Y 8/1), between 408-414 cm; stringers of calcareous, diatomaceous ooze, yellowish gray (5Y 8/1), common between 365-371 cm; gradational contact.

smear slide:	387 cm		
Quartz	<1	Diatoms	5
Carbonate unspecified	1	Radiolarians	<1
Foraminifera	8	Sponge spicules	<<1
Calcareous nannos	86	Silicoflagellates	<<1

414-1167 cm: Diatomaceous ooze, light olive gray (5Y 5/2) and yellowish gray (5Y 7/2), between 414-418 cm; containing carbonate between 414-418 cm; 0.3 cm inclined stringer of calcareous, diatomaceous ooze, yellowish gray (5Y 8/1), between 417-419 cm; flow-in between 430-1167 cm.

smear slide:	426 cm		
Quartz	3	Carbonate unspecified	<1
Feldspar	1	Diatoms	95
Heavy minerals	<1	Radiolarians	<1
Clay	<1	Sponge spicules	<1
Volcanic glass	<1	Silicoflagellates	<1
Micro-Mn nodules	1		

CORE CUTTER AND CATCHER (167 grams): diatomaceous ooze, light olive gray (5Y 5/2), mixed with minor amounts of nannofossil, diatomaceous ooze, yellowish gray (5Y 8/1); flow-in.

smear slides:	(dominant lithology) c/c	(minor lithology) c/c
Quartz	7	3
Feldspar	<1	<1
Heavy minerals	<<1	<<1
Clay	2	<1
Volcanic glass	<1	<1
Micro-Mn nodules	<1	-
Carbonate unspecified	<<1	3
Foraminifera	<<1	6
Calcareous nannos	-	32
Diatoms	88	52
Radiolarians	3	4
Sponge spicules	-	<<1
Silicoflagellates	<<1	<<1

Bottom topography: gently sloping; on the western flank of the Mid-Atlantic Ridge.

Logged by: Bergen, Graves, Watkins

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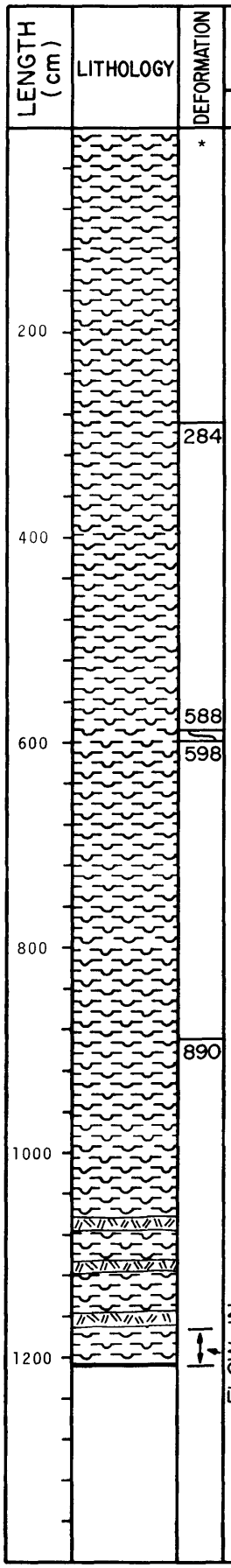


LATITUDE: 48°59.9' S
LONGITUDE: 13°20.2' W
WATER DEPTH: 3464 M, 1894 FM
CORE LENGTH: 1207 CM

LITHOLOGIC DESCRIPTION

0-1207 cm: Diatomaceous ooze, pale olive (10Y 6/2); zone of higher clay content between 1158-1172 cm; "cotton" texture between 600-880 cm; fine laminations of volcanic ash between 1060-1172 cm; stringers of volcanic ash sparsely scattered between 500-620 cm and 700-780 cm; slightly washed along the side between 318-396 cm; slightly disturbed between 588-598 cm; gradationally changing to flow-in at 1172 cm.

smear slides:	130 cm	410 cm	885 cm	(zone) 1166 cm
Quartz	2	3	2	3
Feldspar	-	<1	-	-
Heavy minerals	<<1	<1	<1	<<1
Clay	<1	<1	3	4
Volcanic glass	<1	<1	<1	1
Micro-Mn nodules	<1	<<1	<1	<1
Carbonate unspecified	-	-	<<1	<<1
Foraminifera	-	-	<1	<1
Calcareous nannos	-	-	-	<<1
Diatoms	98	97	95	92
Radiolarians	<1	<1	<1	<1
Silicoflagellates	<<1	<<1	<1	<1

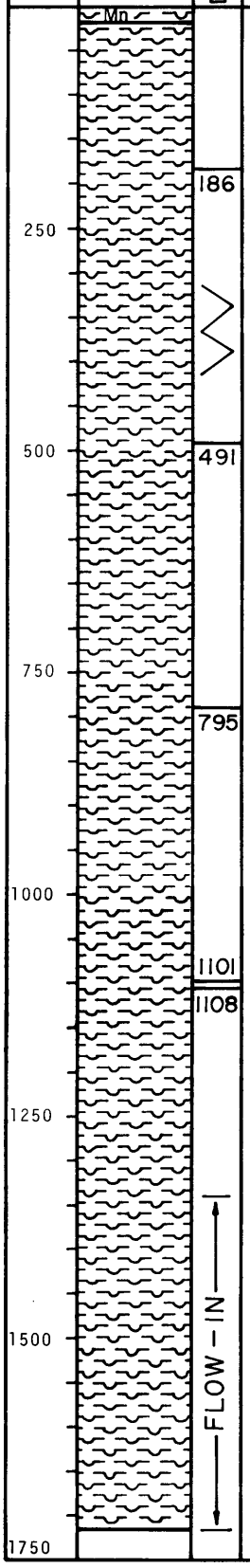
CORE CUTTER AND CATCHER (152 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; south-southwest of the Mid-Atlantic Ridge.

*NOTE: Small amount of surface sediment (<1 cm), from above top of core, is bagged.

Logged by: Harwood, Kaharoeddin

ISLAS ORCADAS PC 1678-83



LATITUDE: 50°56.8′ S **WATER DEPTH:** 3742 M, 2046 FM

LONGITUDE: 14°03.4′ W **CORE LENGTH:** 1718 CM

LITHOLOGIC DESCRIPTION

0-19 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); carbonate unspecified common throughout; foraminifera sparsely scattered throughout; moderately stained with manganese oxides between 4-11 cm; discontinuous stringers moderately stained with manganese oxides common between 17-19 cm; sharp contact.

smear slide:	7 cm
Quartz	1
Feldspar	1
Clay	<1
Volcanic glass	<1
Micro-Mn nodules	<1
Carbonate unspecified	7
Foraminifera	3
Calcareous nannos	<<1
Diatoms	87
Radiolarians	1
Silicoflagellates	<1

19-1718 cm: Diatomaceous ooze, light olive gray (5Y 5/2); yellowish gray (5Y 7/2) between 921-957 cm and 1262-1310 cm; zones of higher diatom content between 921-957 cm and 1262-1310 cm; zones of higher clay content between 216-316 cm and 490-535 cm; discontinuous stringers of ash-bearing, diatomaceous ooze, dusky brown (5YR 2/2), sparsely scattered throughout; moderately disturbed (washed) between 315-415 cm; slightly washed along the side between 186-315 cm and 739-795 cm; flow-in between 1341-1718 cm.

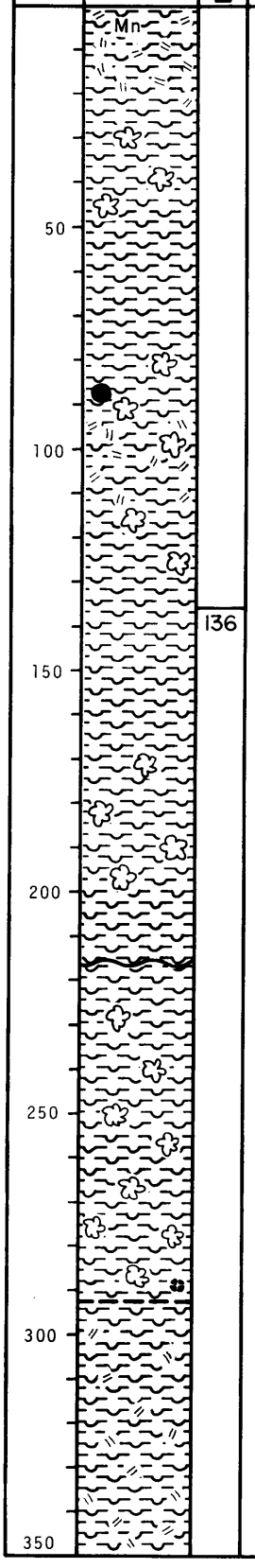
smear slides:	87 cm	372 cm	874 cm	1224 cm
Quartz	4	3	2	5
Feldspar	1	3	2	2
Heavy minerals	-	<<1	-	<1
Clay	3	2	2	10
Volcanic glass	<1	<1	<1	<1
Glauconite	-	-	-	<<1
Micro-Mn nodules	<1	<1	<<1	<<1
Diatoms	92	92	94	83
Radiolarians	<<1	<<1	<<1	<1
Silicoflagellates	<<1	<<1	<<1	<1

CORE CUTTER AND CATCHER (141 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; southwest of the Mid-Atlantic Ridge, and east of the Islas Orcadas Rise.

Logged by: Bergen, Graves

ISLAS ORCADAS PC 1678-84



LATITUDE: 51°57.5′ S
LONGITUDE: 14°25.2′ W
WATER DEPTH: 3952 M, 2161 FM
CORE LENGTH: 1049 CM

LITHOLOGIC DESCRIPTION

0-216 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), abruptly changing at 3 cm to light olive gray (5Y 5/2), and gradationally changing at 87 cm to grayish orange (10YR 7/4); mottled between 25-50 cm, 77-128 cm, and 168-204 cm; moderately stained with manganese oxides between 3-5 cm; volcanic ash common between 3-20 cm and 96-113 cm, sparsely scattered elsewhere; zone of higher clay content between 45-86 cm; laminae of ash-bearing, diatomaceous ooze between 206-209 cm (0.5 cm, inclined), and between 210-211 cm (1 cm); 14 mm subangular pebble between 86-88 cm; sharp, irregular contact.

smear slides:	15 cm	(zone) 67 cm	165 cm
Quartz	5	6	1
Feldspar	<<1	<1	<<1
Heavy minerals	-	<<1	<<1
Clay	1	10	1
Volcanic glass	2	3	3
Diatoms	92	81	94
Radiolarians	<1	<1	<1
Silicoflagellates	<1	-	1

216-293 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), mottled between 224-293 cm; volcanic ash sparsely scattered throughout; zone containing carbonate between 255-272 cm; stringers of volcanic ash between 217-219 cm (0.3 cm) and 284-287 cm (0.2 cm); 10 mm sedimentary clast between 288-289 cm composed of ash-bearing, diatomaceous ooze, olive gray (5Y 4/1), soft; gradational contact.

smear slides:	230 cm	(zone) 268 cm
Quartz	3	1
Feldspar	-	<1
Clay	<1	3
Volcanic glass	<<1	<<1
Carbonate unspecified	-	3
Foraminifera	-	5
Calcareous nannos	-	<<1
Diatoms	95	86
Radiolarians	1	2
Sponge spicules	<<1	-
Silicoflagellates	1	<1

293-451 cm: Diatomaceous ooze, light olive gray (5Y 5/2); clay content increases with depth; volcanic ash abundant between 379-390 cm, common between 293-379 cm and between 390-451 cm; gradational contact.

smear slides:	324 cm	413 cm
Quartz	3	16
Feldspar	-	<1
Heavy minerals	-	1
Clay	1	2
Volcanic glass	<1	5
Micro-Mn nodules	-	<1
Diatoms	96	75
Radiolarians	<1	1
Silicoflagellates	<1	<<1

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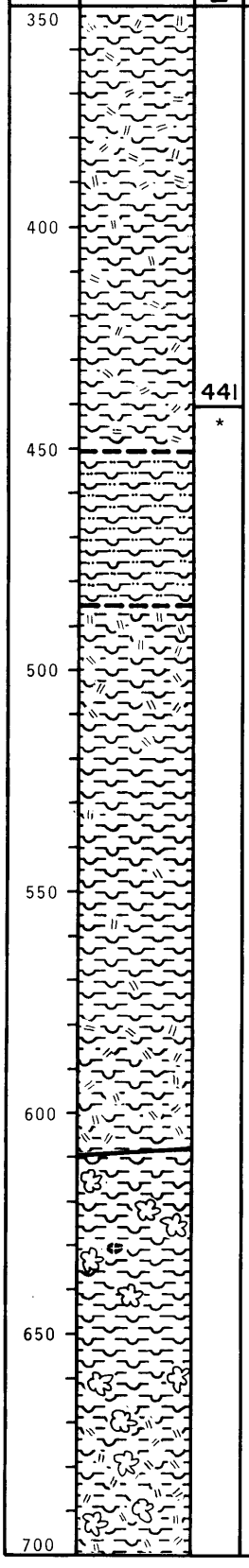

LATITUDE: 51°57.5′ S WATER DEPTH: 3952 M, 2161 FM
LONGITUDE: 14°25.2′ W CORE LENGTH: 1049 CM

LITHOLOGIC DESCRIPTION

451-485 cm: Muddy, diatomaceous ooze, olive gray (5Y 4/1); volcanic ash sparsely scattered throughout; stringers of ash-bearing, diatomaceous ooze between 470-471 cm (0.2 cm), and 471-473 cm (0.3); gradational contact.

smear slide:	477 cm
Quartz	6
Heavy minerals	<1
Clay	30
Volcanic glass	2
Diatoms	61
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	<<1

485-609 cm: Diatomaceous ooze, light olive gray (5Y 5/2), gradationally changing at 528 cm to yellowish gray (5Y 7/2), and at 589 cm to grayish olive (10Y 4/2); zones of higher clay content between 485-517 cm and 590-609 cm; volcanic ash common between 485-517 cm and 580-609 cm, sparsely scattered elsewhere; sharp, inclined contact.

smear slides:	(zone) 508 cm	551 cm
Quartz	13	5
Feldspar	1	<1
Heavy minerals	<1	<<1
Clay	8	4
Volcanic glass	3	2
Micro-Mn nodules	<<1	-
Carbonate unspecified	<<1	-
Diatoms	74	88
Radiolarians	1	1
Sponge spicules	<<1	-
Silicoflagellates	<<1	<1

609-759 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing between 657-683 cm and 727-759 cm to light olive gray (5Y 5/2); mottled between 609-743 cm; zones of higher clay content between 657-683 cm and 727-759 cm; volcanic ash common between 670-743 cm, sparsely scattered elsewhere; 9 mm sedimentary clast between 630-631 cm composed of ash-bearing, diatomaceous ooze, olive gray (5Y 4/1); gradational contact.

smear slides:	623 cm	690 cm
Quartz	2	7
Feldspar	<1	<<1
Mica	<<1	-
Heavy minerals	-	<1
Clay	<1	3
Volcanic glass	2	2
Diatoms	95	85
Radiolarians	<1	3
Sponge spicules	-	-
Silicoflagellates	1	<1

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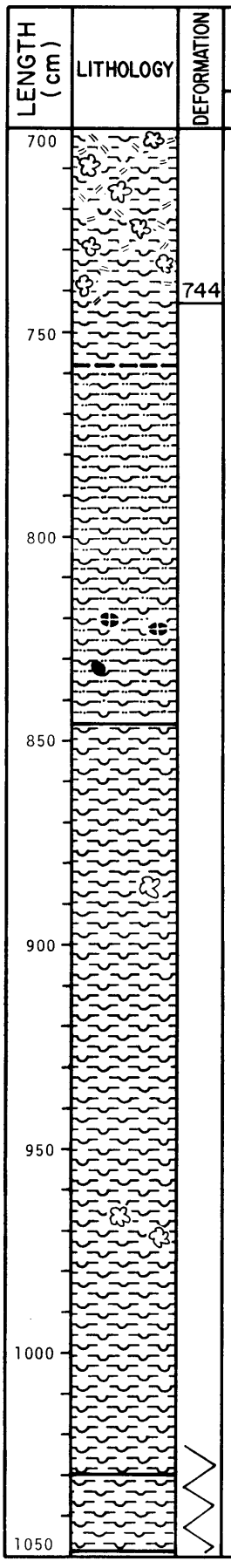

LATITUDE: 51°57.5′ S WATER DEPTH: 3952 M, 2161 FM

LONGITUDE: 14°25.2′ W CORE LENGTH: 1049 CM

LITHOLOGIC DESCRIPTION

759-845 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2), mottled between 781-818 cm; volcanic ash sparsely scattered throughout; zones of lower clay content between 759-789 cm and 817-845 cm; sedimentary clasts between 819-821 cm (13 mm) and 821-822 cm (9 mm) composed of ash-bearing, diatomaceous ooze, olive gray (5Y 4/1), soft; 6 mm subrounded pebble between 830-831 cm; sharp contact.

smear slide:	812 cm
Quartz	8
Feldspar	<1
Clay	25
Volcanic glass	2
Diatoms	65
Radiolarians	<1
Silicoflagellates	<<1

845-1030 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing at 985 cm to light olive gray (5Y 5/2); mottled between 884-887 cm and 964-974 cm; volcanic ash sparsely scattered throughout; zone of higher clay content between 960-1024 cm; stringers of volcanic ash between 947-949 cm (0.4 cm) and 970-972 cm (0.8 cm); moderately disturbed (washed) between 1024-1030 cm; sharp contact.

smear slides:	930 cm	1011 cm
Quartz	6	8
Heavy minerals	<1	<<1
Clay	<1	<1
Volcanic glass	1	1
Micro-Mn nodules	<1	-
Diatoms	92	91
Radiolarians	1	<1
Silicoflagellates	<1	<<1

1030-1049 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash sparsely scattered throughout; moderately disturbed (washed) between 1030-1049 cm.

smear slide:	1033 cm
Quartz	<1
Feldspar	<<1
Clay	1
Volcanic glass	4
Carbonate unspecified	2
Foraminifera	<1
Diatoms	87
Radiolarians	3
Silicoflagellates	3

CORE CUTTER AND CATCHER (135 grams): sediment is the same as that of overlying unit.

Bottom topography: flat; on an otherwise undulatory abyssal plain, south-southwest of the Mid-Atlantic Ridge.

*NOTE: Sediment between 441-442 cm is bagged.

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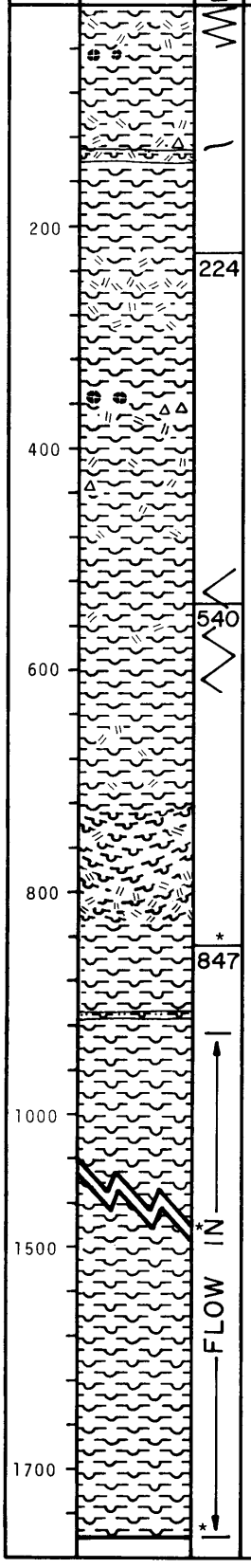


LATITUDE: 55°11.9′ S
LONGITUDE: 15°50.6′ W
WATER DEPTH: 3738 M, 2044 FM
CORE LENGTH: 1761 CM

LITHOLOGIC DESCRIPTION

0-1761 cm: Diatomaceous ooze, light olive gray (5Y 5/2), changing to yellowish gray (5Y 7/2) between 371-648 cm, 702-746 cm, and 754-798 cm; volcanic ash abundant between 746-754 cm and 798-801 cm; common between 17-31 cm, 110-131 cm, 223-290 cm, 371-481 cm, 552-566 cm, and 648-702 cm; small concentrations (up to 3 mm) of sediment stained with manganese oxides sparsely scattered throughout; zones of higher clay content between 291-321 cm, 359-370 cm, and 808-911 cm; 10 cm layer of ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2), between 130-140 cm. Sediment between 746-819 cm exhibits chevron structures. Within this interval (746-819 cm) there occur 1) layers of ash-bearing, diatomaceous ooze, olive gray (5Y 3/2), between 801-804 cm (2.5 cm) and 815-819 cm (1 cm); 2) an inclined lens of ash-bearing, diatomaceous ooze, olive gray (5Y 3/2), between 805-808 cm. A 3 cm layer of muddy, diatomaceous ooze, light olive gray (5Y 5/2), between 911-914 cm; discontinuous stringers of ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2), between 273-275 cm (14 mm) and 851-853 cm (3 mm); sedimentary clasts (up to 6 mm) composed of slightly indurated diatomaceous ooze, light olive brown (5Y 5/6), common between 44-49 cm and 354-360 cm; concentrations of diatom "cotton", yellowish gray (5Y 8/1), sparsely scattered between 172-182 cm and 740-805 cm; pumice between 129-131 cm (18 mm), 362-363 cm (13 mm), 364-366 cm (15 mm), and 426-428 cm (16 mm); moderately disturbed (washed) between 0-41 cm and 513-621 cm; slightly disturbed between 132-134 cm due to imploded core liner; slightly washed along the side between 41-132 cm, 132-270 cm, 330-513 cm and 621-782 cm; gradationally changing to flow-in at 927 cm; flow-in between 927-1761 cm.

smear slides:	28 cm	(layer) 136 cm	(zone) 312 cm	414 cm
Quartz	13	9	7	6
Feldspar	1	<1	1	1
Heavy minerals	1	<1	<<1	<<1
Clay	1	4	13	1
Volcanic glass	5	15	2	8
Micro-Mn nodules	-	-	-	<<1
Carbonate unspecified	-	-	<<1	-
Diatoms	77	71	77	84
Radiolarians	2	1	<1	<1
Silicoflagellates	<1	<1	-	<<1

smear slides:	725 cm	(layer) 803 cm	925 cm
Quartz	2	8	3
Feldspar	<1	1	1
Heavy minerals	-	<1	-
Clay	<1	10	4
Volcanic glass	3	32	2
Micro-Mn nodules	<<1	-	-
Carbonate unspecified	-	-	<<1
Diatoms	93	49	90
Radiolarians	2	<1	<1
Sponge spicules	-	<<1	-
Silicoflagellates	<1	<<1	<<1

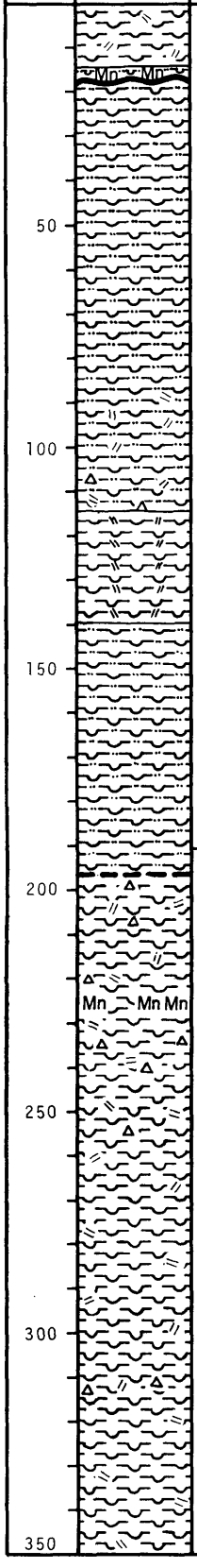
CORE CUTTER AND CATCHER (230 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; on the abyssal floor, east of the northernmost portion of the South Sandwich Trench.

*NOTE: Sediment between 846-847 cm, 1150-1152 cm, and 1760-1761 cm is bagged.

Logged by: Harwood, Bergen, Graves, Kaharoeddin, Watkins

ISLAS ORCADAS PC 1678-89



LATITUDE: 57°03.6′ S
LONGITUDE: 18°32.4′ W
WATER DEPTH: 4285 M, 2343 FM
CORE LENGTH: 1717 CM

LITHOLOGIC DESCRIPTION

0-17 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); volcanic ash common throughout; layer of muddy, diatomaceous ooze, highly stained with manganese oxides, olive gray (5Y 3/2), between 15-17 cm; sharp, irregular contact.

smear slide:	6 cm
Quartz	10
Feldspar	<1
Heavy minerals	<1
Clay	1
Volcanic glass	6
Diatoms	83
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<1

17-197 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash common to abundant between 85-114 cm, sparsely scattered elsewhere; zone of lower clay content between 70-150 cm; layer of ash-bearing, diatomaceous ooze, light olive gray (5Y 6/1), between 114-139 cm; 1 cm lamina of diatomaceous ooze stained with manganese oxides between 58-59 cm; stringers of ash-bearing, diatomaceous ooze common between 17-38 cm; pumice between 107-108 cm (5 mm) and 113-114 cm (3 mm); gradational contact.

smear slides:	26 cm	175 cm
Quartz	12	18
Feldspar	<1	<1
Heavy minerals	1	1
Clay	23	22
Volcanic glass	4	3
Diatoms	60	56
Radiolarians	<1	<1
Sponge spicules	<<1	-
Silicoflagellates	<<1	<<1

197-405 cm: Diatomaceous ooze, light olive gray (5Y 5/2), gradationally changing between 300-336 cm and 365-404 cm to yellowish gray (5Y 7/2); mottled between 369-378 cm; volcanic ash common throughout; layer of ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2), between 355-363 cm; 1 cm lamina of diatomaceous ooze highly stained with manganese oxides between 225-227 cm; fine pumice sparsely scattered between 197-256 cm; pumice between 310-311 cm (6 mm) and 312-313 cm (8 mm); gradational contact.

smear slides:	284 cm	308 cm	(layer) 355 cm
Quartz	5	7	14
Feldspar	<1	<1	-
Heavy minerals	<1	-	<1
Clay	1	3	3
Volcanic glass	9	8	24
Glauconite	-	-	<<1
Diatoms	85	81	59
Radiolarians	<1	1	<1
Silicoflagellates	<<1	<<1	<1

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Logged by: Humphreys, Graves, Bergen, Kaharoeddin, Harwood

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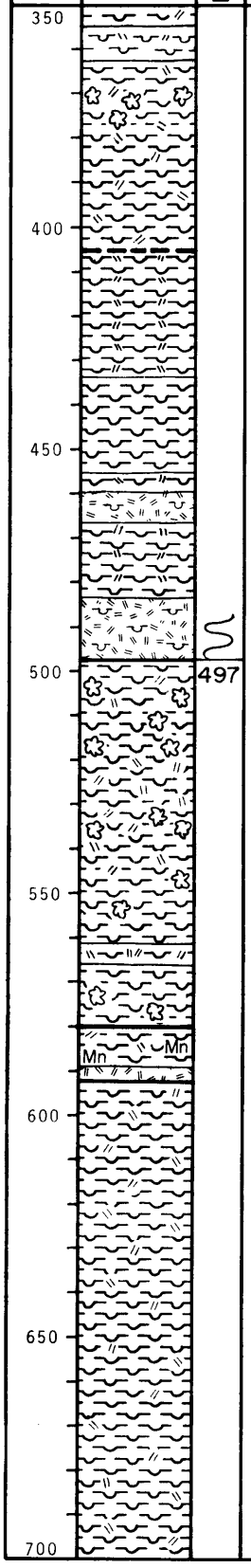

LATITUDE: 57°03.6′ S WATER DEPTH: 4285 M, 2343 FM
LONGITUDE: 18°32.4′ W CORE LENGTH: 1717 CM

LITHOLOGIC DESCRIPTION

405-497 cm: Ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2), gradationally changing at 426 cm to grayish brown (5YR 3/2); layer of diatomaceous ooze, yellowish gray (5Y 7/2), between 434-456 cm; layers of diatom-bearing ash, olive gray (5Y 3/2), between 460-467 cm and 484-497 cm; 5 mm stringer of volcanic ash between 449-450 cm; moderately disturbed (washed) between 487-497 cm; sharp contact.

smear slides:	419 cm	(layer) 488 cm
Quartz	12	12
Feldspar	-	1
Heavy minerals	<1	<1
Clay	6	5
Volcanic glass	24	56
Glauconite	<<1	-
Diatoms	58	26
Radiolarians	<1	<1
Silicoflagellates	<<1	<<1

497-580 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing between 525-546 cm to light olive gray (5Y 5/2); mottled throughout; volcanic ash abundant between 520-548 cm, common between 497-520 cm, and sparsely scattered between 548-562 cm and 566-580 cm; layer of ash-bearing, diatomaceous ooze, olive gray (5Y 3/2), between 562-566 cm; stringers of volcanic ash between 497-546 cm; sharp contact.

smear slide:	509 cm
Quartz	5
Feldspar	<1
Clay	1
Volcanic glass	7
Diatoms	83
Radiolarians	2
Silicoflagellates	2

580-592 cm: Diatomaceous ooze, olive gray (5Y 3/2); volcanic ash common throughout; highly stained with manganese oxides; layer of volcanic ash, dusky yellowish brown (10YR 2/2), between 589-592 cm; sharp contact.

smear slides:	585 cm	(layer) 590 cm
Quartz	9	9
Feldspar	<1	3
Heavy minerals	<1	<1
Clay	2	-
Volcanic glass	8	82
Glauconite	<1	1
Micro-Mn nodules	10	3
Diatoms	71	2
Radiolarians	<1	-
Sponge spicules	<<1	-
Silicoflagellates	<1	-

592-832 cm: Diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash common throughout; mud content increases with depth to 752 cm; layer of diatomaceous mud, light olive gray (5Y 5/2), between 752-762 cm; layer of muddy, diatomaceous ooze, light olive gray (5Y 5/2), between 810-832 cm; stringers of volcanic ash common between 592-610 cm and 792-803 cm; 11 mm pumice between 752-754 cm; gradational contact.

smear slides:	(layer) 758 cm	795 cm
Quartz	24	8
Feldspar	-	<<1
Heavy minerals	<1	<1
Clay	36	1
Volcanic glass	4	6
Carbonate unspecified	1	-
Diatoms	35	85
Radiolarians	<1	<1
Silicoflagellates	-	<<1

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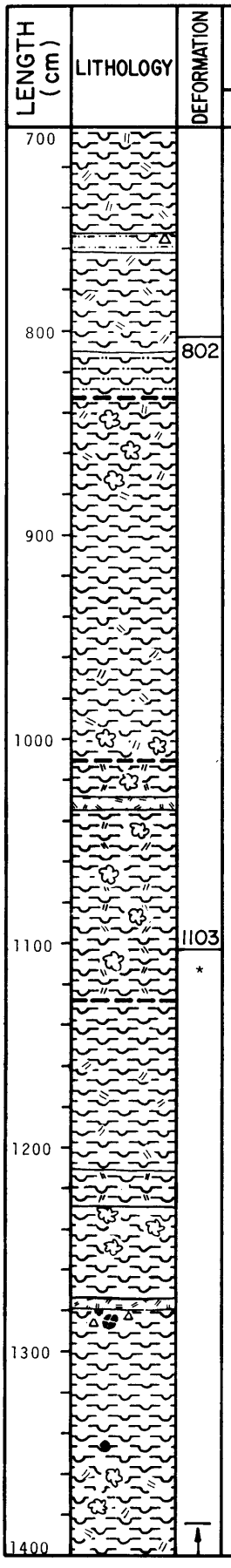

LATITUDE: 57°03.6′ S
LONGITUDE: 18°32.4′ W
WATER DEPTH: 4285 M, 2343 FM
CORE LENGTH: 1717 CM

LITHOLOGIC DESCRIPTION

832-1010 cm: Diatomaceous ooze, light olive gray (5Y 5/2); mottled between 835-877 cm and 998-1010 cm; volcanic ash common between 832-882 cm and 942-1010 cm, sparsely scattered elsewhere; gradational contact.

smear slides:	843 cm	970 cm
Quartz	6	10
Feldspar	<1	<1
Heavy minerals	<1	<<1
Clay	13	1
Volcanic glass	7	5
Diatoms	74	82
Radiolarians	<1	1
Silicoflagellates	<<1	1

1010-1128 cm: Ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2); mottled throughout; layer of volcanic ash, olive gray (5Y 3/2), between 1027-1033 cm; laminae with lower ash content common throughout; gradational contact.

smear slides:	(layer) 1031 cm	1087 cm
Quartz	15	6
Heavy minerals	1	<1
Clay	<1	3
Volcanic glass	80	18
Diatoms	4	73
Radiolarians	-	<1
Silicoflagellates	-	<<1

1128-1717 cm: Diatomaceous ooze, light olive gray (5Y 5/2), yellowish gray (5Y 7/2) between 1355-1362 cm; mottled between 1227-1252 cm, 1355-1359 cm, and 1373-1375 cm; volcanic ash common between 1154-1210 cm and 1355-1717 cm, sparsely scattered between 1128-1154 cm, 1227-1273 cm, and 1279-1355 cm; zone of higher clay content between 1279-1355 cm; layer of ash-bearing, diatomaceous ooze, olive gray (5Y 3/2), between 1210-1227 cm; layer of volcanic ash, dusky yellowish brown (10YR 2/2), between 1273-1279 cm; stringers of volcanic ash common between 1361-1364 cm; 14 mm sedimentary clast between 1283-1285 cm, composed of ash-bearing, diatomaceous ooze, olive gray (5Y 3/2), soft; 9 mm sedimentary clast between 1279-1281 cm, composed of volcanic ash, olive gray (5Y 3/2), soft; pumice between 1279-1281 cm (14 mm) and 1283-1284 cm (10 mm); 5 mm subangular pebble between 1343-1344 cm; abrupt change to flow-in at 1386 cm; flow-in between 1386-1717 cm.

smear slides:	1239 cm	(zone) 1323 cm
Quartz	4	9
Feldspar	1	-
Heavy minerals	<1	<1
Clay	3	9
Volcanic glass	8	4
Glauconite	<1	-
Carbonate unspecified	-	1
Diatoms	81	76
Radiolarians	3	1
Silicoflagellates	<1	<<1

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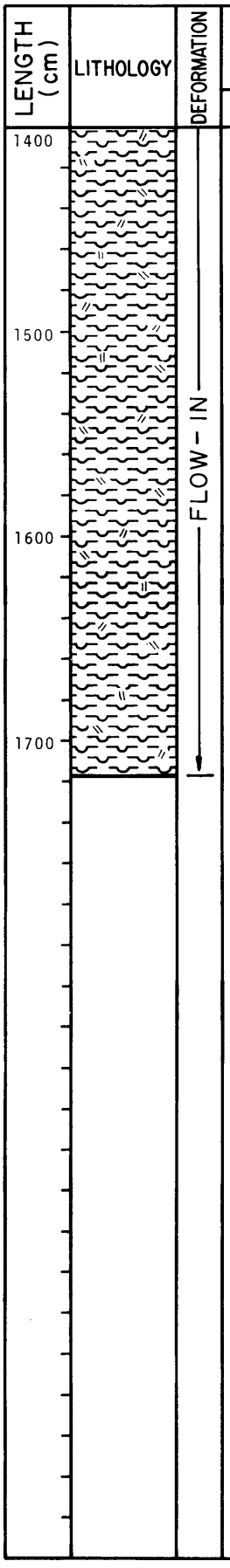

LATITUDE: 57°03.6' S
LONGITUDE: 18°32.4' W
WATER DEPTH: 4285 M, 2343 FM
CORE LENGTH: 1717 CM

LITHOLOGIC DESCRIPTION

CORE CUTTER AND CATCHER (128 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; approximately 290 km east of the South Sandwich Trench.

*NOTE: Sediment between 1103-1104 cm is bagged.

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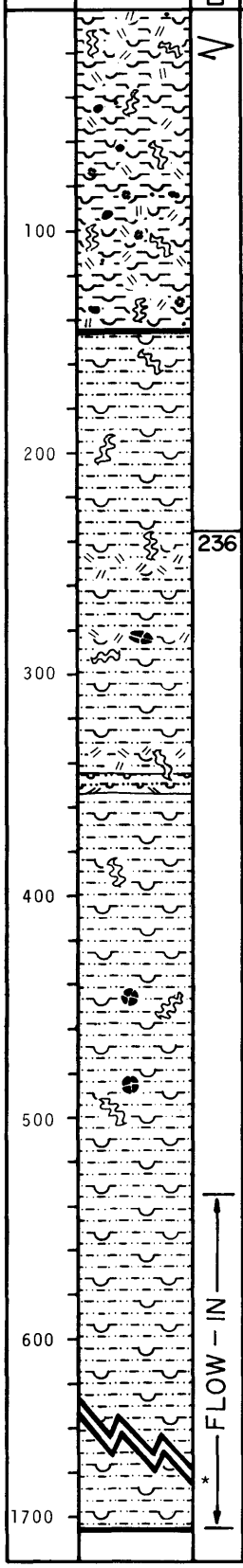

LATITUDE: 57°30.8′ S
LONGITUDE: 17°22.7′ W
WATER DEPTH: 4545 M, 2485 FM
CORE LENGTH: 1715 CM

LITHOLOGIC DESCRIPTION

0-144 cm: Diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash common throughout; layers of ash-bearing, diatomaceous ooze, dark yellowish brown (10YR 4/2), between 22-23 cm (1 cm), 43-45 cm (2 cm), 64-69 cm (4 cm), and 104-106 cm (1.5 cm); stringers of diatom "cotton" sparsely scattered between 26-30 cm and 68-75 cm; sedimentary clasts between 74-75 cm (7 mm), 85-86 cm (8mm), and 101-103 cm (12 mm) composed of diatom "cotton", yellowish gray (5Y 8/1), soft; 11 mm sedimentary clast between 130-132 cm composed of diatomaceous ooze, yellowish gray (5Y 7/2), soft; subrounded pebbles between 86-88 cm (10 mm), 92-94 cm (16 mm), and 132-134 cm (13 mm); 16 mm pebble encrusted with manganese oxide between 64-66 cm; very fine to fine pebbles sparsely scattered throughout; moderately disturbed between 13-22 cm due to broken piece of plastic core liner being imbedded in the sediment; sharp contact.

smear slides:	(layer) 23 cm	102 cm
Quartz	10	5
Feldspar	<1	<1
Heavy minerals	<1	<<1
Clay	1	1
Volcanic glass	19	2
Micro-Mn nodules	2	-
Diatoms	67	90
Radiolarians	1	2
Sponge spicules	<<1	-
Silicoflagellates	<<1	<<1

144-1715 cm: Diatomaceous mud, light olive brown (5Y 5/6); volcanic ash sparsely scattered throughout; volcanic ash abundant between 249-255 cm, 280-287 cm, 330-336 cm, and 346-353 cm; stringers of diatom "cotton" sparsely scattered between 362-493 cm; layer of muddy, diatomaceous ooze, yellowish gray (5Y 7/2), between 345-352 cm; sedimentary clasts between 280-282 cm (10 mm) and 446-448 cm (12 mm) composed of sandy mud, moderate brown (5YR 4/4), moderately compacted; 8 mm sedimentary clast between 484-485 cm composed of diatom "cotton", yellowish gray (5Y 8/1), soft; slightly bioturbated; gradational change to flow-in at 535 cm.

smear slides:	185 cm	(layer) 350 cm
Quartz	12	17
Feldspar	<1	1
Heavy minerals	<1	<1
Clay	44	20
Volcanic glass	<1	14
Micro-Mn nodules	-	5
Foraminifera	<<1	-
Calcareous nannos	<<1	-
Diatoms	40	35
Radiolarians	4	7
Sponge spicules	<1	1
Silicoflagellates	<<1	<<1

CORE CATCHER (83 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; between two rises; about 10 km south of a 549 meter rise, and 15 km north of a 640 meter rise.

*NOTE: Sediment between 1123-1126 cm is bagged.

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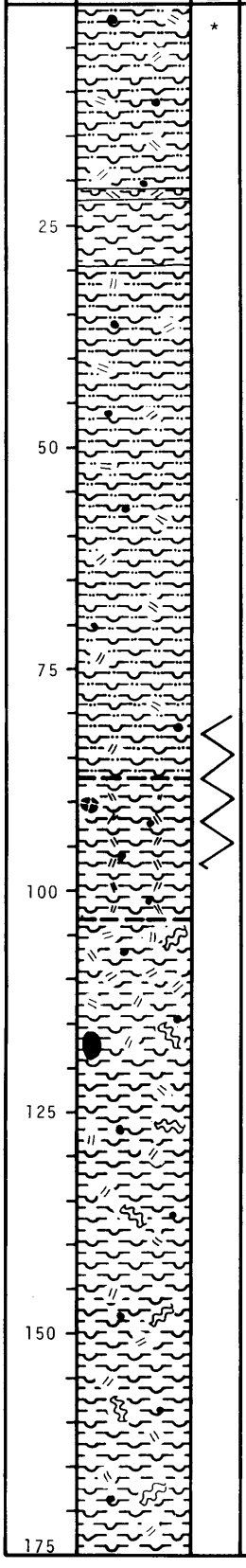

LATITUDE: 58°09.9′ S
LONGITUDE: 17°48.5′ W
WATER DEPTH: 3954 M, 2162 FM
CORE LENGTH: 1735 CM

LITHOLOGIC DESCRIPTION

0-87 cm: Muddy, diatomaceous ooze, dark yellowish brown (10YR 4/2); volcanic ash common throughout; 1.5 cm diffuse layer of ash-bearing, diatomaceous ooze, dark yellowish brown (10YR 4/2), between 20-22 cm; 7 cm layer of diatomaceous ooze, dark yellowish brown (10YR 4/2), between 22-29 cm; discontinuous stringers of diatomaceous ooze, pale yellowish brown (10YR 6/2), between 13-14 cm (0.4 cm) and 16-17 cm (0.5 cm); discontinuous stringers of ash-bearing, diatomaceous ooze, dark yellowish brown (10YR 4/2), common throughout; fine pebbles sparsely scattered throughout; moderately disturbed (due to implosion of the core liner) between 80-87 cm; gradational contact.

smear slide:	66 cm
Quartz	8
Feldspar	1
Heavy minerals	<<1
Clay	25
Volcanic glass	6
Glauconite	<<1
Diatoms	59
Radiolarians	1
Sponge spicules	<<1

87-103 cm: Ash-bearing, diatomaceous ooze, grayish brown (5YR 3/2); 22 mm sedimentary clast between 89-92 cm, composed of volcanic ash, dusky yellowish brown (10YR 2/2); fine pebbles sparsely scattered throughout; moderately disturbed (due to implosion of the core liner) between 87-97 cm; gradational contact.

smear slide:	98 cm
Quartz	9
Feldspar	3
Heavy minerals	<<1
Clay	5
Volcanic glass	32
Glauconite	<1
Diatoms	50
Radiolarians	1

103-283 cm: Diatomaceous ooze, dark yellowish brown (10YR 4/2); volcanic ash abundant between 103-113 cm and 176-182 cm, common between 113-176 cm, 182-251 cm, and 261-283 cm; 1.5 cm layer of sandy, diatomaceous ooze, dark yellowish brown (10YR 4/2), between 204-206 cm; 10 cm layer of ash-bearing, diatomaceous ooze, grayish brown (5YR 3/2), between 251-261 cm; 0.9 cm lamina of diatomaceous ooze, light olive gray (5Y 5/2), and of higher diatom content, between 126-127 cm; 0.9 cm lamina of ash-bearing, diatomaceous ooze, yellowish gray (5Y 7/2), between 193-194 cm; discontinuous stringers of diatomaceous ooze, yellowish gray (5Y 7/2), and of higher diatom content, between 153-154 cm (0.6 cm), 154-155 cm (0.4 cm), and 197-198 cm (0.3 cm); 15 mm sedimentary clast between 215-217 cm, composed of sandy, diatomaceous ooze, yellowish gray (5Y 7/2); angular fragments of pumice between 204-206 cm (15 mm) and 270-272 cm (14 mm); 26 mm subrounded pebble between 116-119 cm; fine pebbles abundant between 204-205 cm, sparsely scattered between 103-204 cm and 205-283 cm; highly bioturbated between 177-181 cm, slightly bioturbated between 103-177 cm and 181-283 cm; sharp contact.

smear slides:	167 cm	(layer) 258 cm		167 cm	(layer) 258 cm
Quartz	9	6	Glauconite	<<1	-
Feldspar	1	3	Diatoms	63	61
Heavy minerals	<1	<<1	Radiolarians	2	<1
Clay	15	10	Sponge spicules	<<1	<<1
Volcanic glass	10	20			

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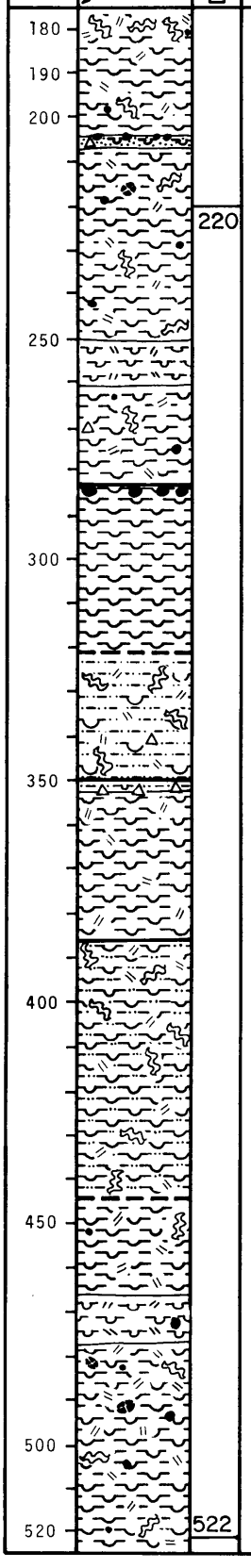

LATITUDE: 58°09.9′ S
LONGITUDE: 17°48.5′ W
WATER DEPTH: 3954 M, 2162 FM
CORE LENGTH: 1735 CM

LITHOLOGIC DESCRIPTION

283-321 cm: Diatomaceous ooze, moderate yellowish brown (10YR 5/4); clay content lower than that of the overlying unit; clay content increases with depth; medium pebbles abundant between 283-286 cm; gradational contact.

smear slide:	286 cm
Quartz	3
Feldspar	<1
Clay	1
Volcanic glass	4
Diatoms	91
Radiolarians	1
Silicoflagellates	<<1

321-350 cm: Diatomaceous mud, dark yellowish brown (10YR 4/2); volcanic ash abundant between 326-330 cm, common between 321-326 cm and 330-350 cm; moderately bioturbated between 325-333 cm, slightly bioturbated between 321-325 cm and 333-350 cm; 16 mm lapilli between 341-343 cm; sharp contact.

smear slide:	338 cm
Quartz	7
Feldspar	1
Heavy minerals	<<1
Clay	59
Volcanic glass	5
Diatoms	28
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<<1

350-386 cm: Diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash abundant between 352-358 cm, common between 358-386 cm; zone of higher diatom content between 373-377 cm; 2 cm layer of diatomaceous mud, light olive brown (5Y 5/6), between 350-352 cm; lenses up to 2 cm of diatom "cotton", white (N9), common between 370-377 cm; fine to medium lapilli common between 350-354 cm; sharp contact.

smear slide:	369 cm
Quartz	10
Feldspar	<1
Heavy minerals	2
Clay	2
Volcanic glass	7
Glauconite	<1
Micro-Mn nodules	1
Diatoms	77
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	<<1

386-444 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2), dark yellowish brown (10YR 4/2) between 386-396 cm; volcanic ash abundant between 386-396 cm, common between 396-444 cm; moderately bioturbated between 386-396 cm, 408-417 cm, and 440-444 cm, slightly bioturbated between 396-408 cm and 417-440 cm; gradational contact.

smear slide:	403 cm		
Quartz	11	Glauconite	<<1
Feldspar	1	Micro-Mn nodules	1
Mica	<<1	Diatoms	54
Heavy minerals	1	Radiolarians	1
Clay	25	Sponge spicules	<<1
Volcanic glass	6	Silicoflagellates	<<1

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LENGTH (cm) | LITHOLOGY | DEFORMATION

LATITUDE: 58°09.9′ S WATER DEPTH: 3954 M, 2162 FM

LONGITUDE: 17°48.5′ W CORE LENGTH: 1735 CM

LITHOLOGIC DESCRIPTION

444-557 cm: Diatomaceous ooze, light olive gray (5Y 5/2); yellowish gray (5Y 7/2) between 508-538 cm, and light olive gray (5Y 6/1) between 538-547 cm; volcanic ash abundant between 458-466 cm, 477-508 cm, 526-530 cm, and 538-547 cm, common between 444-458 cm, 508-526 cm, 530-538 cm, and 547-557 cm; zone of higher clay content between 444-508 cm; 11 cm layer of ash-bearing, diatomaceous ooze, grayish brown (5YR 3/2), between 466-477 cm; 0.3cm lamina of diatom-bearing, sandy ash, light olive gray (5Y 6/1), between 518-519 cm; discontinuous stringers of diatom "cotton", white (N9), between 505-511 cm (0.8 cm and 0.3 cm) and 551-553 cm (0.8 cm); 8 mm sedimentary clast between 482-483 cm, composed of diatom-bearing ash, dusky yellowish brown (10YR 2/2); 10 mm sedimentary clast between 491-493 cm, composed of diatom-bearing, sandy ash, dark yellowish brown (10YR 4/2); 15 mm subangular pebble between 472-474 cm; 6 mm oblong pebble between 493-494 cm; fine pebbles sparsely scattered throughout; slightly bioturbated; gradational contact.

smear slides:	(zone) 489 cm	516 cm
Quartz	6	6
Feldspar	1	<1
Heavy minerals	-	<<1
Clay	3	<1
Volcanic glass	9	7
Diatoms	80	84
Radiolarians	1	3
Sponge spicules	<<1	<<1
Silicoflagellates	<<1	<<1
Ebridians	<<1	<<1

557-623 cm: Diatomaceous mud, light olive gray (5Y 5/2); volcanic ash common between 578-583 cm and 604-623 cm, sparsely scattered between 557-578 cm and 583-604 cm; fine pebbles sparsely scattered between 600-623 cm; highly bioturbated between 619-623 cm, slightly bioturbated between 557-619 cm; sharp, bioturbated contact.

smear slide:	567 cm
Quartz	10
Feldspar	1
Heavy minerals	<<1
Clay	40
Volcanic glass	5
Diatoms	44
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<<1

623-701 cm: Diatomaceous ooze, light olive gray (5Y 6/1); volcanic ash abundant between 646-659 cm and 671-678 cm, common between 629-646 cm, 659-671 cm, and 678-701 cm; 6 cm layer of ash-bearing, diatomaceous ooze, dark yellowish brown (10YR 4/2), between 623-629 cm; discontinuous stringers of diatom "cotton", yellowish gray (5Y 7/2), sparsely scattered between 636-701 cm; medium lapilli common between 690-693 cm; fine pebbles sparsely scattered throughout; moderately bioturbated between 629-632 cm, slightly bioturbated between 632-701 cm; gradational contact.

smear slide:	653 cm
Quartz	7
Feldspar	<1
Heavy minerals	<1
Clay	2
Volcanic glass	11
Diatoms	79
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	<<1

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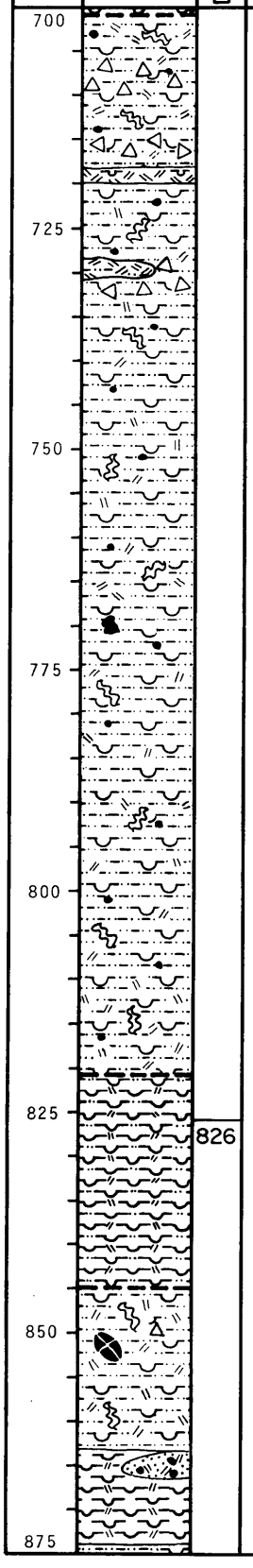

LATITUDE: 58°09.9′ S WATER DEPTH: 3954 M, 2162 FM
LONGITUDE: 17°48.5′ W CORE LENGTH: 1735 CM

LITHOLOGIC DESCRIPTION

701-821 cm: Diatomaceous mud, light olive gray (5Y 6/1); volcanic ash abundant between 701-718 cm, 767-768 cm, and 810-821 cm, common between 720-767 cm and 768-810 cm; 1.5 cm layer of diatom-bearing ash, dusky yellowish brown (10YR 2/2), between 718-720 cm; 2 cm lens of muddy ash, light olive gray (5Y 6/1), between 728-731 cm; lenses of muddy ash, light olive gray (5Y 6/1), up to 0.3 cm, common between 708-711 cm; medium to coarse lapilli abundant between 706-711 cm, 714-718 cm, and 728-733 cm; 15 mm angular pebble between 769-771 cm; fine pebbles sparsely scattered throughout; slightly bioturbated; gradational contact.

smear slide:	706 cm
Quartz	11
Feldspar	2
Heavy minerals	<<1
Clay	36
Volcanic glass	11
Diatoms	40
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<<1
Ebridians	<<1

821-845 cm: Ash-bearing, muddy, diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash and diatom content increase with depth; stringers of volcanic ash (up to 0.3 cm), brownish gray (5YR 4/1), common between 843-844 cm; gradational contact.

smear slide:	836 cm
Quartz	11
Feldspar	1
Mica	<<1
Heavy minerals	2
Clay	18
Volcanic glass	23
Diatoms	43
Radiolarians	2
Sponge spicules	<1
Silicoflagellates	<<1

845-881 cm: Diatomaceous mud, light olive gray (5Y 5/2); volcanic ash abundant throughout; 11 cm layer of ash-bearing, diatomaceous ooze, olive gray (5Y 4/1), between 863-874 cm; 1.4 cm lens of ash-bearing, pebbly sand, olive gray (5Y 3/2), between 863-866 cm; 20 mm sedimentary clast between 850-853 cm, composed of volcanic ash, dusky yellowish brown, (10YR 2/2); 10 mm lapilli between 849-851 cm; slightly bioturbated; gradational contact.

smear slide:	854 cm
Quartz	12
Feldspar	2
Heavy minerals	<1
Clay	32
Volcanic glass	9
Glauconite	<<1
Diatoms	44
Radiolarians	1
Sponge spicules	<1
Silicoflagellates	<<1
Ebridians	<<1

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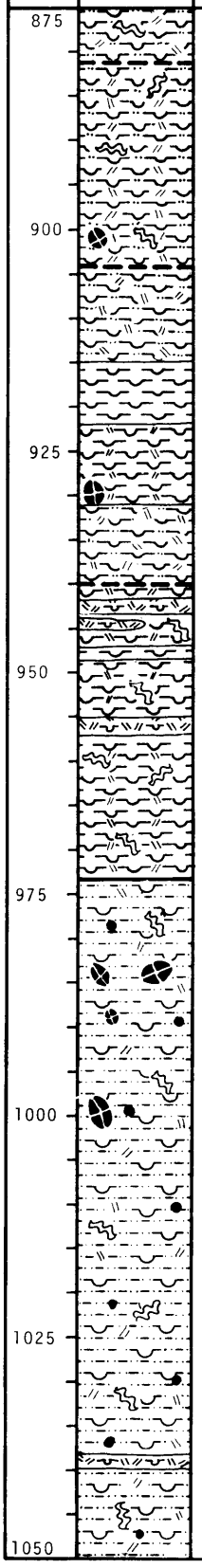

LATITUDE: 58°09.9′ S WATER DEPTH: 3954 M, 2162 FM
LONGITUDE: 17°48.5′ W CORE LENGTH: 1735 CM

LITHOLOGIC DESCRIPTION

881-904 cm: Ash-bearing, muddy, diatomaceous ooze, dark yellowish brown (10YR 4/2); 15 mm sedimentary clast between 900-902 cm, composed of diatom-bearing, sandy ash, light olive gray (5Y 5/2); slightly bioturbated; gradational contact.

smear slide: 890 cm

Quartz	15
Feldspar	1
Heavy minerals	<<1
Clay	17
Volcanic glass	22
Diatoms	44
Radiolarians	1
Sponge spicules	<<1
Ebridians	<<1

904-940 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash abundant throughout; 7 cm layer of diatomaceous ooze, light olive gray (5Y 5/2), between 915-922 cm; 9 cm layer of ash-bearing, diatomaceous ooze, olive gray (5Y 4/1), between 922-931 cm; 10 mm sedimentary clast between 929-931 cm, composed of volcanic ash, brownish black (5YR 2/1); gradational contact.

smear slide: 937 cm

Quartz	16
Feldspar	<1
Heavy minerals	<1
Clay	24
Volcanic glass	6
Micro-Mn nodules	<1
Diatoms	53
Radiolarians	1
Sponge spicules	<1

940-973 cm: Ash-bearing, diatomaceous ooze, olive gray (5Y 4/1); carbonate sparsely scattered between 962-966 cm; 1 cm layer of diatomaceous ooze, yellowish gray (5Y 7/2), between 947-948 cm; layers of diatom-bearing ash, light olive gray (5Y 5/2), between 942-943 cm (1 cm) and 955-957 cm (2 cm); 0.9 cm lens of diatom-bearing ash, light olive gray (5Y 5/2), between 944-945 cm; moderately bioturbated between 958-963 cm, slightly bioturbated between 940-958 cm and 963-973 cm; sharp contact.

smear slide: 950 cm

Quartz	13	Volcanic glass	18
Feldspar	1	Diatoms	57
Heavy minerals	2	Radiolarians	1
Clay	8	Sponge spicules	<<1

973-1065 cm: Diatomaceous mud, yellowish gray (5Y 7/2); volcanic ash abundant between 1047-1065 cm, common between 973-1038 cm, and 1040-1047 cm; 1.5 cm layer of diatom-bearing ash, light olive gray (5Y 5/2), between 1038-1040 cm; 16 mm sedimentary clast between 983-986 cm, composed of diatom-bearing ash, yellowish gray (5Y 7/2); sedimentary clasts of diatom-bearing ash, light olive gray (5Y 5/2), between 983-987 cm (30 mm), 989-990 cm (9 mm), and 997-1002 cm (38 mm); fine to medium pebbles sparsely scattered throughout; slightly bioturbated throughout; sharp, irregular contact.

smear slide: 1017 cm

Quartz	6	Foraminifera	3
Feldspar	1	Diatoms	27
Heavy minerals	<<1	Radiolarians	<1
Clay	48	Sponge spicules	<1
Volcanic glass	6	Silicoflagellates	<<1
Carbonate unspecified	9		

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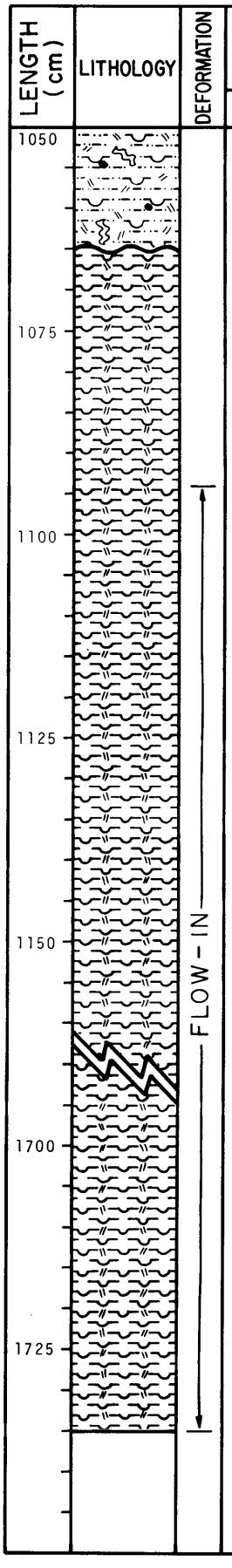

LATITUDE: 58°09.9′ S
LONGITUDE: 17°48.5′ W
WATER DEPTH: 3954 M, 2162 FM
CORE LENGTH: 1735 CM

LITHOLOGIC DESCRIPTION

1065-1735 cm: Ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2); flow-in between 1094-1735 cm.

smear slide:	1078 cm
Quartz	7
Feldspar	<1
Heavy minerals	1
Clay	2
Volcanic glass	16
Glauconite	<<1
Diatoms	72
Radiolarians	2
Sponge spicules	<<1
Silicoflagellates	<<1

Bottom topography: gently sloping; approximately 380 km east of the axis of the South Sandwich Trench.

*NOTE: Sediment between 0-1 cm is bagged.

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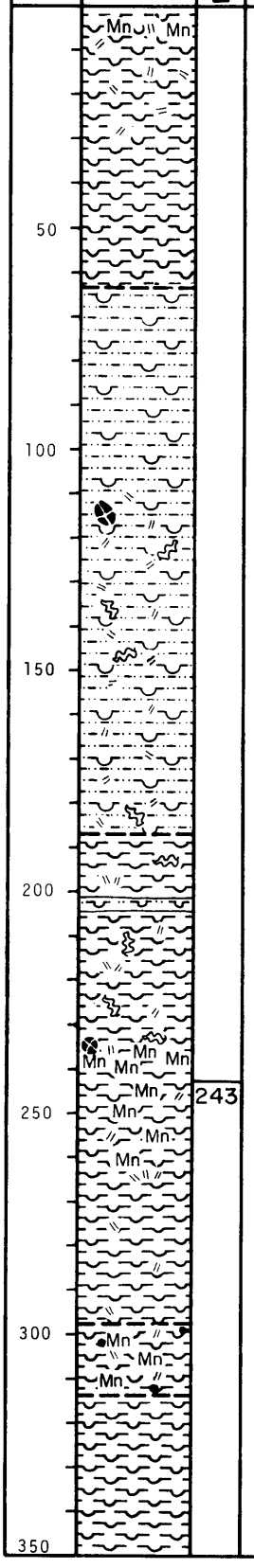

LATITUDE: 60°27.9' S WATER DEPTH: 4177 M, 2284 FM

LONGITUDE: 21°37.1' W CORE LENGTH: 845 CM

LITHOLOGIC DESCRIPTION

0-63 cm: Diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash common between 0-30 cm, sparsely scattered between 30-63 cm; moderately stained with manganese oxides between 0-7 cm; 5 cm irregular layer of diatom "cotton", dusky yellow (5Y 6/4), between 33-38 cm; lenses of diatom "cotton", yellowish gray (5Y 7/2), common between 38-44 cm, sparsely scattered between 44-60 cm; stringers of diatomaceous ooze, moderate brown (5YR 3/4), moderately stained with manganese oxides, common between 7-27 cm and 43-61 cm; slightly washed along the side between 0-33 cm; gradational contact.

smear slide: 25 cm

Quartz	6	Diatoms	84
Feldspar	1	Radiolarians	1
Heavy minerals	<<1	Sponge spicules	<<1
Clay	4	Silicoflagellates	<1
Volcanic glass	4		

63-187 cm: Diatomaceous mud, light olive gray (5Y 5/2); volcanic ash common between 110-187 cm, sparsely scattered between 63-110 cm; slightly stained with manganese oxides between 125-187 cm; 1 cm lens of muddy, diatomaceous ooze, light olive gray (5Y 6/1), between 115-116 cm; 32 mm sedimentary clast between 113-117 cm, composed of volcanic ash, dark yellowish brown (10YR 4/2); slightly bioturbated between 120-150 cm and 180-187 cm; gradational contact.

smear slides:

	86 cm	152 cm		86 cm	152 cm
Quartz	7	14	Diatoms	36	39
Feldspar	<1	<1	Radiolarians	<<1	1
Heavy minerals	<1	2	Sponge spicules	<<1	<<1
Clay	53	33	Silicoflagellates	<<1	-
Volcanic glass	4	11			

187-298 cm: Diatomaceous ooze, dark yellowish brown (10YR 4/2); light olive gray (5Y 5/2) between 262-278 cm; laminated between 238-262 cm; volcanic ash common throughout; concentrations of volcanic ash between 196-197 cm, 216-217 cm, and 263-264 cm; highly stained with manganese oxides between 238-243 cm, moderately stained between 243-262 cm, and slightly stained between 187-238 cm and 278-298 cm; 2 cm layer of muddy, diatomaceous ooze, light olive gray (5Y 5/2), between 202-204 cm; 27 mm sedimentary clast between 236-239 cm, composed of diatomaceous ooze, light olive gray (5Y 5/2); slightly bioturbated between 187-238 cm; gradational contact.

smear slides:

	231 cm	272 cm		231 cm	272 cm
Quartz	12	10	Micro-Mn nodules	-	<<1
Feldspar	1	2	Diatoms	74	72
Heavy minerals	1	<1	Radiolarians	1	1
Clay	4	10	Sponge spicules	<<1	<<1
Volcanic glass	7	5	Silicoflagellates	-	<<1
Glauconite	<<1	<<1			

298-314 cm: Ash-bearing, diatomaceous ooze, dusky yellowish brown (10YR 2/2); moderately stained with manganese oxides throughout; fine pebbles sparsely scattered throughout; gradational contact.

smear slide: 306 cm

Quartz	13	Diatoms	65
Feldspar	1	Radiolarians	2
Heavy minerals	<<1	Sponge spicules	<1
Clay	1	Silicoflagellates	<<1
Volcanic glass	18		

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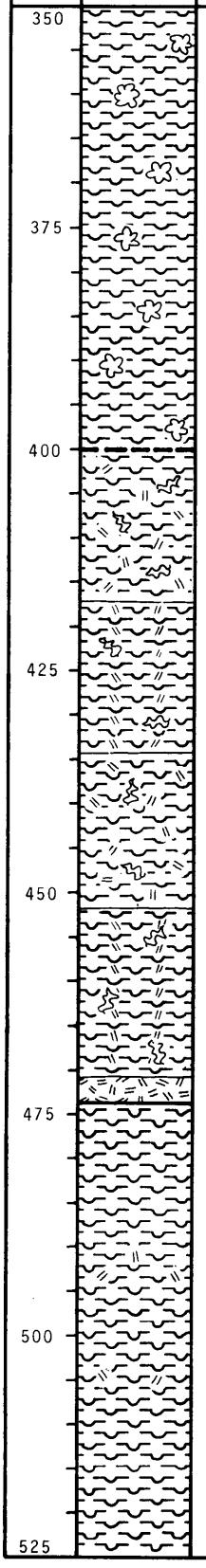
Logged by: Bergen, Graves, Harwood

LENGTH (cm) | LITHOLOGY | DEFORMATION

LATITUDE: 60°27.9′ S WATER DEPTH: 4177 M, 2284 FM
LONGITUDE: 21°37.1′ W CORE LENGTH: 845 CM

LITHOLOGIC DESCRIPTION



314-400 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), dusky yellow (5Y 6/4) between 348-354 cm, and light olive brown (5Y 5/6) between 365-381 cm; volcanic ash sparsely scattered throughout; slightly stained with manganese oxides between 314-323 cm; laminae of diatomaceous ooze, dark yellowish brown (10YR 4/2), moderately stained with manganese oxides, abundant between 333-349 cm; slightly mottled between 350-400 cm; gradational contact.

smear slide:	391 cm
Quartz	4
Feldspar	<1
Heavy minerals	<<1
Clay	<1
Volcanic glass	6
Glauconite	<<1
Diatoms	88
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	1

400-474 cm: Interbedded layers of diatomaceous ooze, olive gray (5Y 4/1), containing abundant volcanic ash, and ash-bearing, diatomaceous ooze, olive black (5Y 2/1) as follows: diatomaceous ooze between 400-417 cm and 434-452 cm; ash-bearing, diatomaceous ooze between 417-434 cm and 452-471 cm; 3 cm layer of volcanic ash, brownish black (5YR 2/1), between 471-474 cm; stringers of diatomaceous ooze, light olive gray (5Y 5/2), between 468-469 cm (3 mm) and 470-471 cm (7 mm), slightly bioturbated throughout; sharp contact.

smear slides:	422 cm	445 cm
Quartz	7	6
Feldspar	1	1
Heavy minerals	2	<1
Clay	1	2
Volcanic glass	19	13
Glauconite	<1	<<1
Diatoms	69	77
Radiolarians	1	1
Sponge spicules	-	<<1
Silicoflagellates	<1	<1

474-561 cm: Diatomaceous ooze, light olive gray (5Y 6/1) between 474-532 cm, and light olive gray (5Y 5/2) between 532-561 cm; volcanic ash common between 490-494 cm and 504-506 cm, sparsely scattered between 474-490 cm, 494-504 cm, and 506-561 cm; zone of higher mud content between 532-561 cm; laminae of diatom "cotton", yellowish gray (5Y 8/1), common between 485-495 cm and 510-532 cm; gradational contact.

smear slides:	484 cm	(zone) 544 cm
Quartz	3	8
Feldspar	1	1
Heavy minerals	-	<1
Clay	<1	2
Volcanic glass	4	3
Diatoms	92	85
Radiolarians	<1	1
Sponge spicules	<<1	<1
Silicoflagellates	<1	<1

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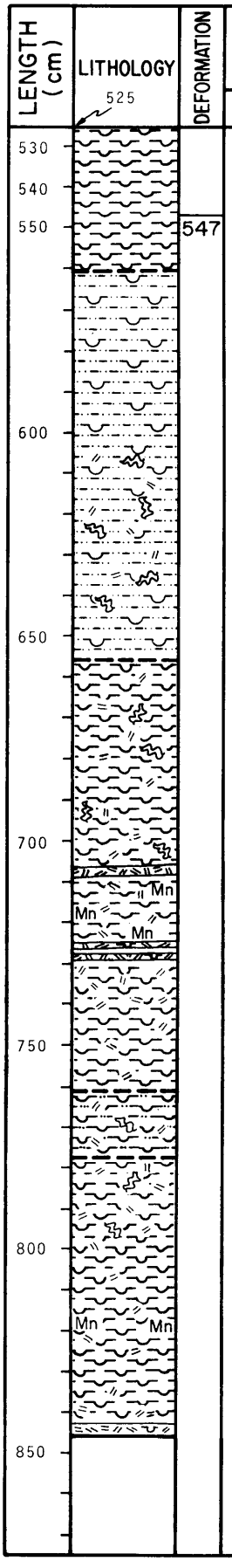

LATITUDE: 60°27.9′ S
LONGITUDE: 21°37.1′ W
WATER DEPTH: 4177 M, 2284 FM
CORE LENGTH: 845 CM

LITHOLOGIC DESCRIPTION

561-656 cm: Diatomaceous mud, light olive gray (5Y 5/2); volcanic ash common between 605-634 cm, sparsely scattered between 561-605 cm and 634-656 cm; moderately bioturbated between 606-642 cm; gradational contact.

smear slide: 572 cm

Quartz	11	Carbonate unspecified	1
Feldspar	1	Diatoms	35
Mica	<<1	Radiolarians	<<1
Heavy minerals	<1	Sponge spicules	<<1
Clay	49	Silicoflagellates	<<1
Volcanic glass	3		

656-761 cm: Diatomaceous ooze, light olive gray (5Y 5/2); dark yellowish brown (10YR 4/2), between 706-740 cm and 756-759 cm; volcanic ash abundant between 708-725 cm, 726-727 cm, and 728-740 cm, common between 656-706 cm, 740-761 cm; moderately stained with manganese oxides between 708-730 cm, slightly stained between 730-742 cm and 756-759cm;layer of volcanic ash, dusky yellowish brown (10YR 2/2), between 706-708 cm; layers of diatom-bearing ash, dusky yellowish brown (10YR 2/2), between 725-726 cm (1 cm), and 727-728 cm (1 cm); moderately bioturbated between 665-695 cm, slightly bioturbated between 695-706 cm; gradational contact.

smear slides:

	713 cm	745 cm		713 cm	745 cm
Quartz	14	5	Diatoms	63	82
Feldspar	1	1	Radiolarians	2	2
Heavy minerals	<1	<1	Sponge spicules	-	<<1
Clay	8	3	Silicoflagellates	-	<<1
Volcanic glass	12	7			

761-777 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash common throughout; slightly bioturbated throughout; gradational contact.

smear slide: 772 cm

Quartz	6	Volcanic glass	9
Feldspar	<1	Glauconite	<1
Mica	<1	Diatoms	58
Heavy minerals	1	Radiolarians	1
Clay	25	Sponge spicules	<<1

777-845 cm: Diatomaceous ooze, light olive gray (5Y 5/2); dark yellowish brown (10YR 4/2) between 815-824 cm; volcanic ash abundant between 777-798 cm and 839-843 cm, common between 798-839 cm; moderately stained with manganese oxides between 815-824 cm; zone of higher diatom content between 821-826 cm; 2 cm layer of diatom-bearing ash, moderate olive brown (5Y 4/4), between 843-845 cm; stringers of diatom "cotton", yellowish gray (5Y 8/1), between 814-815 cm (0.3 cm), 828-829 cm (0.1 cm), and 835-836 cm (0.4 cm); slightly bioturbated between 777-798 cm.

smear slide: 812 cm

Quartz	9	Glauconite	<<1
Feldspar	1	Diatoms	82
Heavy minerals	<1	Radiolarians	1
Clay	<1	Sponge spicules	<<1
Volcanic glass	7	Silicoflagellates	<<1

CORE CUTTER AND CATCHER (420 grams): Volcanic ash, moderate olive brown (5Y 4/4).

Bottom topography: gently sloping; on a relatively flat portion of the sea floor.

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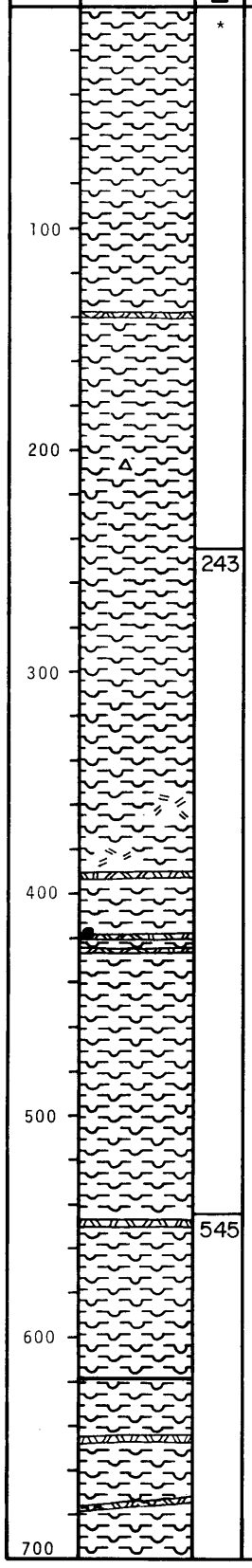

LATITUDE: 59°50.3′ S WATER DEPTH: 4631 M, 2532 FM
LONGITUDE: 23°25.9′ W CORE LENGTH: 1146 CM

LITHOLOGIC DESCRIPTION

0-618 cm: Diatomaceous ooze, yellowish gray (5Y 7/2) and light olive gray (5Y 5/2), containing more than 90% diatoms; highly laminated and interbedded with diatomaceous ooze, light olive gray (5Y 5/2), containing abundant silt (15% to 20%) and common volcanic ash (5% to 10%), between 56-173 cm, 198-218 cm, and 598-618 cm; moderately laminated between 218-310 cm and 385-540 cm, and slightly laminated between 0-56 cm, 173-198 cm, 310-385 cm, and 540-598 cm; moderately interbedded with diatomaceous ooze, olive gray (5Y 3/2), containing abundant volcanic ash (10% to 15%) between 390-445 cm and 545-579 cm; texture varies as follows: coarse, "cotton" texture between 0-56 cm, fine "cotton" texture between 56-310 cm, and "velvety" texture between 310-618 cm; patches (up to 3mm) slightly stained with manganese oxides sparsely scattered between 424-473 cm and 572-602 cm; laminae of volcanic ash, grayish black (N2), between 138-139 cm (0.3 cm), 390-391 cm (0.2 cm), 418-419 cm (1 cm), 423-424 cm (0.1 cm), and 549-550 cm (0.3 cm); stringers and patches (up to 3 cm) rich in volcanic ash and scoriae (up to 4 mm) common between 357-365 cm and 385-388 cm; 8 mm pumice between 207-208 cm; 11 mm rounded pebble between 417-419 cm; sharp contact.

smear slides:	18 cm	85 cm	215 cm	493 cm
Quartz	1	18	2	4
Feldspar	1	1	<1	<1
Heavy minerals	<1	1	<1	<1
Clay	<<1	1	<1	<<1
Volcanic glass	<1	10	1	2
Micro-Mn nodules	-	1	-	-
Diatoms	98	67	97	92
Radiolarians	<<1	1	<1	<1
Sponge spicules	1	-	-	<<1
Silicoflagellates	<<1	<1	<1	2

618-878 cm: Diatomaceous ooze, light olive gray (5Y 5/2), containing between 80% to 90% diatoms, and having a velvety texture; highly laminated and interbedded with pure diatomaceous ooze, yellowish gray (5Y 7/2), having a fine, "cotton" texture, between 660-690 cm, 725-740 cm, 844-859 cm, and 868-875 cm; moderately laminated elsewhere; patches (up to 3 mm) slightly stained with manganese oxides common between 694-708 cm, 730-750 cm, and 807-813 cm; laminae of ash-bearing, diatomaceous ooze between 673-675 cm (0.8 cm, inclined) and 754-756 cm (0.6 cm, inclined); laminae of volcanic ash between 644-645 cm (0.2 cm), 702-703 cm (0.4 cm), 727-728 cm (0.3 cm), 793-794 cm (0.3 cm), and 857-858 cm (0.2 cm); inclined lens of volcanic ash between 747-748 cm (0.5 cm); concentration of pumice (up to 15 mm) between 742-745 cm; sharp contact.

smear slides:	(lamina) 674 cm	754 cm	824 cm
Quartz	17	8	6
Feldspar	<1	<1	<1
Heavy minerals	1	<1	<<1
Clay	1	1	1
Volcanic glass	25	8	4
Diatoms	55	83	88
Radiolarians	1	<1	<1
Sponge spicules	<1	<<1	-
Silicoflagellates	<<1	<<1	1

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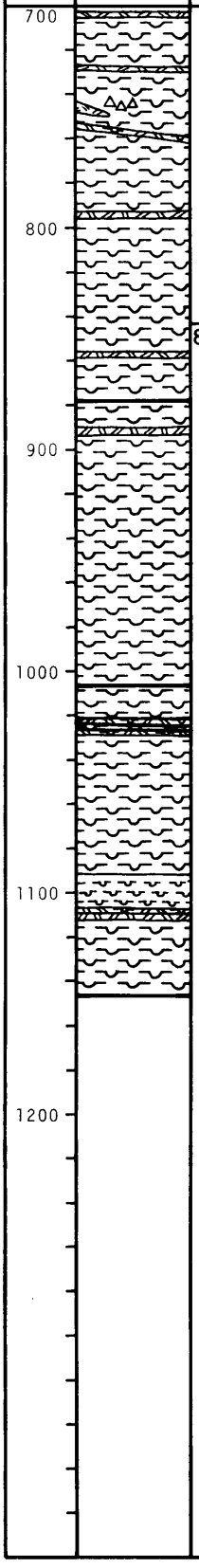

LATITUDE: 59°50.3' S WATER DEPTH: 4631 M, 2532 FM

LONGITUDE: 23°25.9' W CORE LENGTH: 1146 CM

LITHOLOGIC DESCRIPTION

878-1006 cm: Diatomaceous ooze, light olive gray (5Y 5/2), containing more than 95% diatoms and having a fine "cotton" texture; highly laminated and interbedded with diatomaceous ooze, light olive gray (5Y 5/2), with a higher silt and volcanic ash content, and having a velvety texture; slightly laminated with diatomaceous ooze, olive gray (5Y 4/1), containing abundant volcanic ash; patches (up to 3 mm) slightly stained with manganese oxides common between 893-900 cm, sparsely scattered elsewhere; lamina of volcanic ash between 890-891 cm (0.5 cm); stringers and patches (up to 3 mm) of volcanic ash common between 891-897 cm and 986-989 cm; sharp contact.

smear slides:	884 cm	935 cm	998 cm
Quartz	1	4	2
Feldspar	<1	<1	-
Heavy minerals	<<1	<<1	-
Clay	<<1	<1	<<1
Volcanic glass	-	3	2
Micro-Mn nodules	-	<1	-
Diatoms	99	92	95
Radiolarians	<1	<1	<1
Sponge spicules	-	<<1	-
Silicoflagellates	<<1	1	1

1006-1146 cm: Diatomaceous ooze, light olive gray (5Y 5/2) and pale olive (10Y 6/2), containing between 80% to 90% diatoms, and having a velvety texture; highly laminated and interbedded with pure diatomaceous ooze, pale greenish yellow (10Y 8/2), having a fine, "cotton" texture, between 1016-1046 cm, 1068-1073 cm, and 1121-1138 cm; patches (up to 6 mm) slightly stained with manganese oxides common between 1007-1017 cm, 1046-1054 cm, and 1122-1130 cm; layer of diatomaceous ooze, olive gray (5Y 4/1), between 1092-1107 cm, with higher silt content and containing carbonate; lamina of volcanic ash between 1109-1111 cm (1.5 cm); laminae of ash-bearing, diatomaceous ooze between 1021-1023 cm (1.8 cm), 1024-1025 cm (0.8 cm), and 1107-1109 cm (1.5 cm);lens of volcanic ash between 1024-1025 cm (8 mm).

smear slides:	1064 cm	(layer) 1104 cm	1136 cm
Quartz	9	20	8
Feldspar	<1	1	1
Heavy minerals	<1	<1	<1
Clay	<1	5	2
Volcanic glass	4	10	2
Micro-Mn nodules	<1	-	-
Carbonate unspecified	-	2	-
Foraminifera	-	2	-
Calcareous nannos	-	<1	-
Diatoms	87	60	87
Radiolarians	<1	<1	<1
Sponge spicules	-	<1	-
Silicoflagellates	<<1	<<1	<<1

CORE CUTTER AND CATCHER (268 grams): Diatomaceous ooze, light olive gray (5Y 5/2); laminated with pure diatomaceous ooze, pale greenish yellow (10Y 8/2).

Bottom topography: moderately sloping; on the upper, northwest flank of a basement rise (relief of 1646 meters), located 48 km east of the axis of the South Sandwich Trench.

*NOTE: Sediment between 0-3 cm is bagged.

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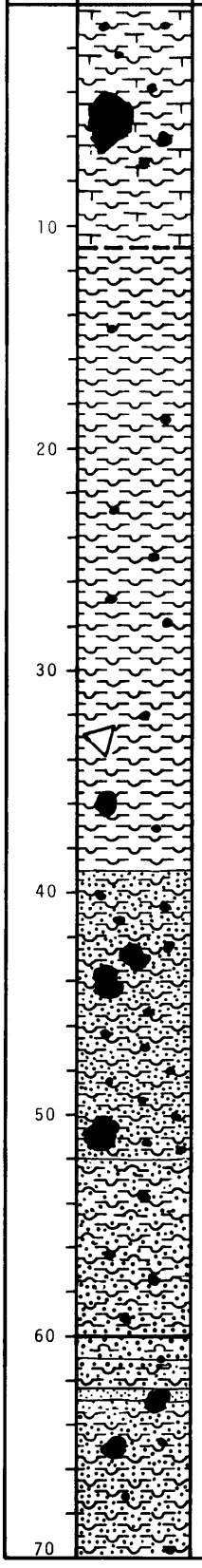

LATITUDE: 51°30.5′ S
LONGITUDE: 25°11.9′ W
WATER DEPTH: 3028 M, 1656 FM
CORE LENGTH: 1036 CM

LITHOLOGIC DESCRIPTION

0-11 cm: Foraminiferal, diatomaceous ooze, yellowish gray (5Y 7/2); 28 mm angular pebble between 4-7 cm; subangular to angular, fine and medium pebbles common between 0-8 cm; gradational contact.

smear slide:	5 cm
Quartz	13
Feldspar	<1
Heavy minerals	<1
Clay	<1
Volcanic glass	3
Glauconite	<<1
Carbonate unspecified	6
Foraminifera	24
Calcareous nannos	<1
Diatoms	49
Radiolarians	5
Sponge spicules	<<1
Silicoflagellates	<1

11-60 cm: Diatomaceous ooze, light olive gray (5Y 5/2), abruptly changing at 25 cm to yellowish gray (5Y 7/2); 13 cm layer of sandy, diatomaceous ooze, yellowish gray (5Y 7/2), between 39-52 cm; 8 cm layer of sandy, radiolarian, diatomaceous ooze, yellowish gray (5Y 7/2), between 52-60 cm; 14 mm pumice between 32-34 cm; angular pebbles between 35-37 cm (14 mm), 42-44 cm (16 mm), 43-45 cm (18 mm), and 50-52 cm (18 mm); subangular to angular, very fine and fine pebbles abundant between 40-52 cm, common between 22-28 cm and 56-60 cm, sparsely scattered elsewhere; sharp contact. NOTE: Smear slide at 54 cm is slightly biased toward the fine fraction.

smear slides:	18 cm	38 cm	(layer) 54 cm
Quartz	12	12	20
Feldspar	<1	1	<1
Mica	<<1	-	-
Heavy minerals	1	1	<1
Clay	5	7	2
Volcanic glass	2	3	5
Rock fragments	-	1	-
Glauconite	<1	<1	1
Carbonate unspecified	-	<1	-
Calcareous nannos	-	<<1	-
Diatoms	78	73	46
Radiolarians	2	2	25
Sponge spicules	<<1	<1	1
Silicoflagellates	<1	<1	<1

60-82 cm: Sandy, diatomaceous ooze, light olive gray (5Y 5/2); 1 cm lamina of radiolarian-bearing sand between 60-61 cm; 0.5 cm lamina of fine sand between 62-63 cm; subangular pebbles between 62-64 cm (12 mm), 64-66 cm (16 mm), 70-72 cm (10 mm, elongated), 73-76 cm (28 mm, elongated) and 78-81 cm (18 mm); subangular, very fine pebbles sparsely scattered throughout; sharp contact.

smear slide:	69 cm
Quartz	30
Feldspar	<1
Heavy minerals	<1
Clay	7
Volcanic glass	6
Glauconite	3
Diatoms	46
Radiolarians	8
Sponge spicules	<1

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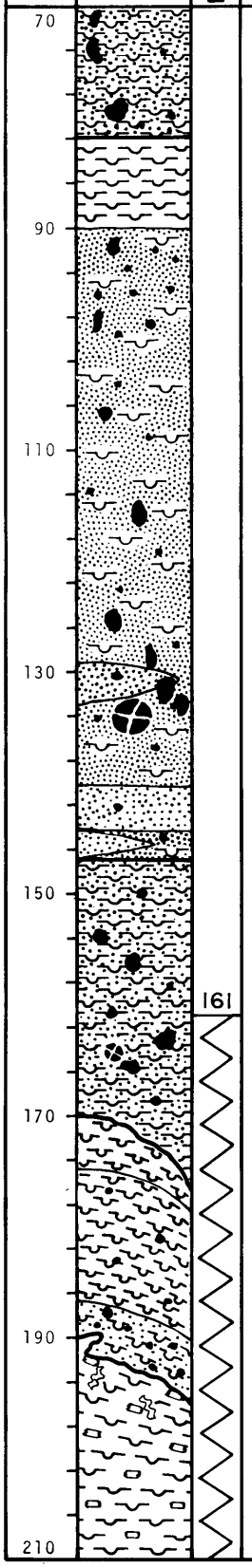

LATITUDE: 51°30.5′ S **WATER DEPTH:** 3028 M, 1656 FM

LONGITUDE: 25°11.9′ W **CORE LENGTH:** 1036 CM

LITHOLOGIC DESCRIPTION

82-147 cm: Diatomaceous sand, light olive gray (5Y 5/2); sand is fine, well sorted; 8 cm layer of diatomaceous ooze, yellowish gray (5Y 7/2), between 82-90 cm; 4 cm layer of fine sand, light olive gray (5Y 5/2), moderately sorted, between 140-144 cm; 3.7 cm lens of medium sand, light olive gray (5Y 5/2), poorly sorted, between 129-133 cm; 1.5 cm lens of fine sand, light olive gray (5Y 5/2), moderately sorted, between 145-147 cm; 0.5 cm lamina of diatomaceous ooze, yellowish gray (5Y 7/2), between 144-145 cm; 26 mm broken sedimentary clast between 132-136 cm, composed of diatomaceous ooze, yellowish gray (5Y 7/2), soft; stringers of diatomaceous ooze, up to 6 mm in thickness, between 138-140 cm; subangular pebbles between 91-93 cm (18 mm), 97-100 cm (13 mm, elongated), 106-108 cm (13 mm), 114-118 cm (19 mm, elongated), 124-127 cm (18 mm), 127-130 cm (11 mm, elongated), 130-133 cm (16 mm, elongated), and 132-134 cm (17 mm); very fine and fine pebbles abundant between 91-100 cm, sparsely scattered between 100-147 cm; sharp contact. NOTE: Smear slide is slightly biased toward the fine fraction.

smear slide:	122 cm		
Quartz	54	Glauconite	5
Feldspar	1	Diatoms	23
Heavy minerals	3	Radiolarians	4
Clay	7	Sponge spicules	<1
Volcanic glass	3		

147-170 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing at 150 cm to light olive gray (5Y 5/2); 15 mm sedimentary clast between 163-165 cm, composed of diatomaceous ooze, yellowish gray (5Y 7/2), soft; subangular pebbles between 153-155 cm (7 mm), 155-157 cm (8 mm) and 165-166 cm (8 mm); 18 mm angular pebble between 162-164 cm; very fine pebbles sparsely scattered throughout; moderately disturbed throughout; sharp contact (inclined and irregular due to disturbance).

smear slide:	153 cm		
Quartz	29	Glauconite	3
Feldspar	1	Diatoms	51
Heavy minerals	1	Radiolarians	4
Clay	10	Sponge spicules	<<1
Volcanic glass	1	Silicoflagellates	<<1

170-192 cm: Diatomaceous ooze, light olive gray (5Y 5/2); 5 cm layer of diatomaceous ooze with lower quartz sand content, yellowish gray (5Y 7/2), between 170-175 cm; 4 cm layer of sandy, diatomaceous ooze, light olive gray (5Y 5/2), between 187-192 cm; 6 mm angular pebble between 187-188 cm; very fine pebbles abundant between 187-192 cm, sparsely scattered between 175-187 cm; moderately disturbed throughout; sharp contact (inclined and irregular due to disturbance).

smear slide:	184 cm		
Quartz	7	Foraminifera	1
Feldspar	<1	Calcareous nannos	<<1
Heavy minerals	1	Diatoms	65
Clay	12	Radiolarians	3
Volcanic glass	1	Sponge spicules	<<1
Glauconite	<1	Silicoflagellates	<1
Carbonate unspecified	10		

192-223 cm: Calcareous, diatomaceous ooze, light olive gray (5Y 5/2) between 192-199 cm and 213-223 cm, yellowish gray (5Y 7/2) between 199-213 cm; fine pebbles sparsely scattered between 215-223 cm; slightly bioturbated between 192-196 cm; moderately disturbed throughout; sharp contact (inclined and irregular due to disturbance).

smear slide:	217 cm		
Quartz	5	Carbonate unspecified	10
Feldspar	<<1	Foraminifera	13
Heavy minerals	<1	Diatoms	64
Clay	5	Radiolarians	2
Volcanic glass	1	Sponge spicules	<<1
Glauconite	<<1	Silicoflagellates	<<1

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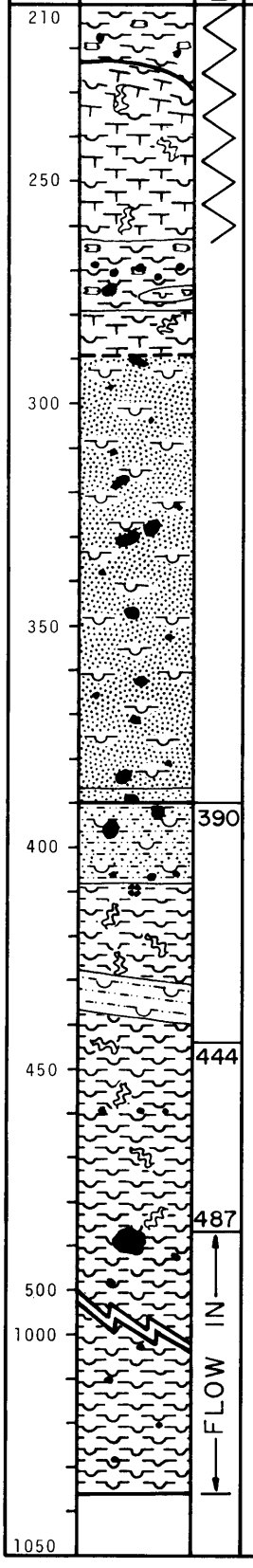


LATITUDE: 51°30.5′ S
LONGITUDE: 25°11.9′ W
WATER DEPTH: 3028 M, 1656 FM
CORE LENGTH: 1036 CM

LITHOLOGIC DESCRIPTION

223-289 cm: Diatomaceous, foraminiferal ooze, yellowish gray (5Y 8/1) between 223-234 cm and 251-289 cm, light olive gray (5Y 6/1) between 234-251 cm; zone of higher foraminiferal content between 234-251 cm; zone containing nannofossil ooze and higher quartz (sand and silt) content between 280-289 cm; 16 cm layer of calcareous, diatomaceous ooze, light olive gray (5Y 5/2), between 263-279 cm; 2 cm lens of diatomaceous, calcareous ooze, yellowish gray (5Y 8/1), between 275-277 cm; 10 mm subrounded pebble between 274-276 cm; angular, fine pebbles abundant between 269-272 cm; slightly bioturbated between 223-263 cm and 279-289 cm; moderately disturbed between 223-264 cm; gradational contact.

smear slide:	232 cm
Quartz	3
Clay	2
Carbonate unspecified	10
Foraminifera	66
Diatoms	18
Radiolarians	1
Silicoflagellates	<<1

289-390 cm: Diatomaceous sand, light olive gray (5Y 5/2); sand is very fine, well sorted; 3 cm layer of fine sand between 387-390 cm; angular pebbles between 289-292 cm (16 mm, elongated), 315-319 cm (20 mm, elongated), 329-332 cm (20 mm), and 346-349 cm (21 mm); subangular pebbles between 326-330 cm (23 mm, elongated), 361-363 cm (16 mm), 371-373 cm (16 mm), 382-385 cm (16 mm, elongated), and 388-390 cm (17 mm); fine pebbles common throughout, angular to subrounded; sharp contact (coincides with break between core sections).

smear slides:	303 cm	368 cm
Quartz	53	41
Feldspar	1	<1
Mica	<1	<<1
Heavy minerals	2	3
Clay	5	5
Volcanic glass	8	6
Glauconite	3	1
Diatoms	23	35
Radiolarians	5	9
Sponge spicules	<1	<1
Silicoflagellates	<1	<<1

390-1036 cm: Diatomaceous ooze, light olive gray (5Y 5/2); layer of diatomaceous, sandy mud, light olive gray (5Y 5/2), between 390-408 cm; layer of diatomaceous mud, pale yellowish brown (10YR 6/2), between 430-439 cm, with inclined contacts; 10 mm sedimentary clast between 409-410 cm, composed of volcanic ash, black (N1); subangular pebbles between 391-393 cm (12 mm) and 394-397 cm (23 mm); fine pebbles common between 405-408 cm and 460-461 cm; moderately bioturbated between 408-430 cm and 439-487 cm; abrupt change to flow-in at 487 cm; flow-in containing fine to coarse pebbles, and a 44 mm pebble between 487-492 cm.

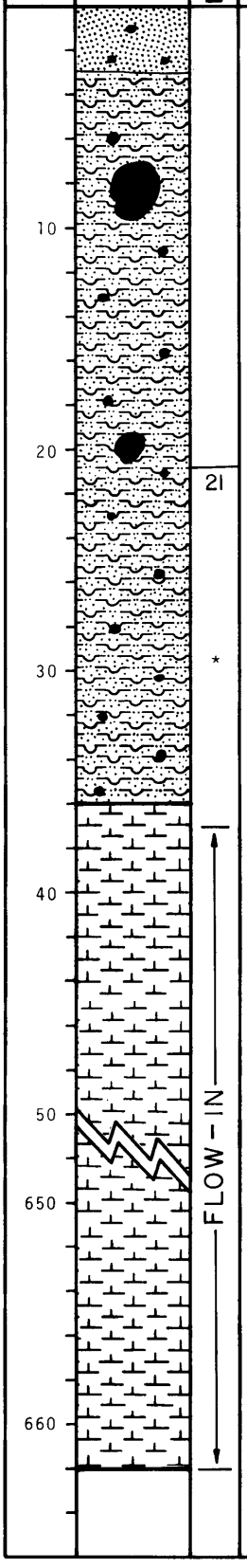
smear slides:	(layer) 402 cm	416 cm	(layer) 432 cm	446 cm
Quartz	25	25	24	17
Feldspar	2	1	1	1
Heavy minerals	2	2	3	<1
Clay	33	2	40	2
Volcanic glass	4	4	2	4
Glauconite	-	<<1	-	<1
Carbonate unspecified	-	-	<<1	-
Foraminifera	-	-	<1	-
Diatoms	32	54	30	66
Radiolarians	2	12	<<1	10
Sponge spicules	<<1	<1	-	<1
Silicoflagellates	<<1	<<1	-	<<1

CORE CATCHER (23 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: flat; on the eastern apex of the Islas Orcadas Rise.

Logged by: Kaharoeddin, Eggers, Humphreys, Harwood, Graves, Bergen

ISLAS ORCADAS PC 1678-104



LATITUDE: 51°29.5′ S
LONGITUDE: 25°27.7′ W
WATER DEPTH: 2999 M, 1640 FM
CORE LENGTH: 662 CM

LITHOLOGIC DESCRIPTION

0-36 cm: Sandy, muddy, diatomaceous ooze, yellowish gray (5Y 7/2); layer of fine sand between 0-3 cm, light olive gray (5Y 5/2); stringers rich in micro-manganese nodules common between 4-20 cm; pebbles between 7-10 cm (30 mm) and 19-21 cm (16 mm); fine pebbles common throughout; sharp contact.

smear slides:	(layer) 1 cm	12 cm
Quartz	57	27
Feldspar	3	<1
Heavy minerals	4	2
Clay	1	24
Volcanic glass	5	2
Glauconite	8	-
Carbonate unspecified	2	-
Foraminifera	<1	-
Calcareous nannos	4	-
Diatoms	10	40
Radiolarians	5	5
Sponge spicules	1	<<1
Silicoflagellates	<1	<<1

36-662 cm: Nannofossil ooze, white (N9); gradationally changing to flow-in at 37 cm.

smear slide:	47 cm
Foraminifera	2
Calcareous nannos	93
Diatoms	1
Radiolarians	4
Sponge spicules	<1
Silicoflagellates	<<1

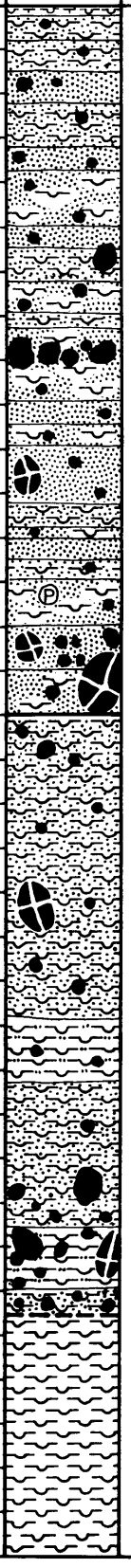
CORE CUTTER AND CATCHER (54 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; on the eastern apex of the Islas Orcadas Rise.

*NOTE: Sediment between 21-36 cm is bagged.

Logged by: Jones, Eggers, Hattner

ISLAS ORCADAS PC 1678-105



LATITUDE: 51°31.2' S WATER DEPTH: 3122 M, 1707 FM

LONGITUDE: 25°30.4' W CORE LENGTH: 220 CM

LITHOLOGIC DESCRIPTION

0-64 cm: Interbedded layers (up to 5 cm) of fine to coarse sand, diatomaceous sand, and sandy, diatomaceous ooze, light olive gray (5Y 5/2) and yellowish gray (5Y 7/2); 0.5 cm lamina between 0-0.5 cm, composed of foraminiferal, diatomaceous ooze, yellowish gray (5Y 7/2); sedimentary clasts between 41-44 cm (25 mm) and 57-59 cm (10 mm), composed of clay, dark yellowish orange (10YR 6/6); 40 mm sedimentary clast between 59-64 cm, composed of calcareous, diatomaceous ooze, white (N9); 13 mm phosphatic nodule between 52-54 cm; 15 mm subangular pebble between 6-8 cm; 6 mm subrounded pebble between 14-15 cm; 13 mm subrounded pebble between 22-24 cm; pebbles up to 25 mm abundant between 30-33 cm; pebbles up to 12 mm abundant between 56-60 cm; pebbles up to 4 mm common throughout; sharp contact. NOTE: Smear slide at 43 cm biased toward the fine fraction.

smear slides:	11 cm	43 cm	47 cm	52 cm
Quartz	16	48	30	37
Feldspar	2	1	1	1
Heavy minerals	1	2	3	3
Clay	5	11	8	5
Volcanic glass	4	4	3	3
Rock fragments	-	<<1	<1	-
Glauconite	-	6	4	5
Diatoms	64	17	45	32
Radiolarians	7	11	6	14
Sponge spicules	<1	<1	<<1	<1
Silicoflagellates	1	-	<<1	-

64-118 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); stringers of volcanic ash common throughout; layers of muddy, diatomaceous ooze, moderate yellowish brown (10YR 5/4), between 91-97 cm (52 mm) and 110-116 cm (58 mm); sedimentary clasts between 79-84 cm (38 mm) and 110-115 cm (40 mm), composed of sand, light olive gray (5Y 6/1); 17 mm angular pebble between 66-68 cm; subrounded pebbles between 105-108 cm (21 mm) and 110-113 cm (19 mm); pebbles up to 12 mm abundant between 105-116 cm; pebbles up to 4 mm common throughout; gradational contact.

smear slide:	74 cm
Quartz	26
Feldspar	<1
Heavy minerals	1
Clay	4
Volcanic glass	6
Glauconite	1
Micro-Mn nodules	<<1
Diatoms	59
Radiolarians	3
Sponge spicules	<1
Silicoflagellates	<<1

118-158 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); stringers of volcanic ash common throughout; stringers of diatom "cotton", grayish yellow (5Y 8/4), between 148-149 cm and 156-157 cm; gradational contact.

smear slide:	130 cm
Quartz	12
Feldspar	1
Heavy minerals	<1
Clay	9
Volcanic glass	2
Glauconite	1
Diatoms	70
Radiolarians	4
Sponge spicules	<1
Silicoflagellates	1

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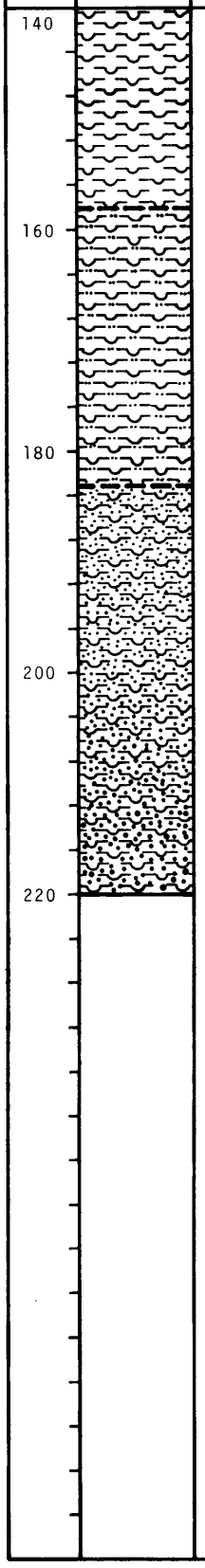
Logged by: Bergen, Eggers, Graves

ISLAS ORCADAS PC 1678-105



LATITUDE: 51°31.2′ S
LONGITUDE: 25°30.4′ W
WATER DEPTH: 3122 M, 1707 FM
CORE LENGTH: 220 CM

LITHOLOGIC DESCRIPTION

158-183 cm: Muddy, diatomaceous ooze, yellowish gray (5Y 7/2); stringers of volcanic ash common throughout; gradational contact.

smear slide:	172 cm
Quartz	18
Feldspar	1
Heavy minerals	<1
Clay	20
Volcanic glass	3
Diatoms	54
Radiolarians	4
Sponge spicules	<<1
Silicoflagellates	<1

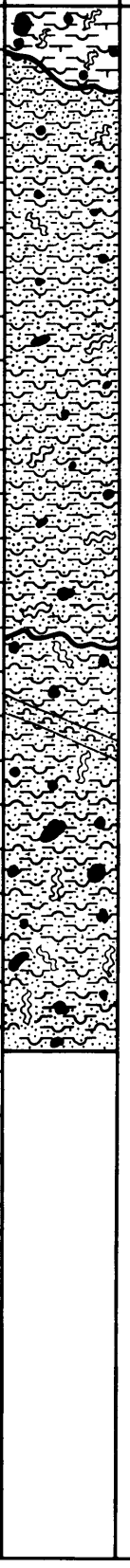
183-220 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); quartz content increases with depth; stringers of volcanic ash common throughout.

smear slide:	189 cm
Quartz	16
Feldspar	1
Heavy minerals	1
Clay	2
Volcanic glass	3
Glauconite	<1
Diatoms	74
Radiolarians	3
Sponge spicules	<1
Silicoflagellates	<1

Bottom topography: gently sloping; on the eastern apex of the Islas Orcadas Rise.

Logged by: Bergen, Eggers, Graves

ISLAS ORCADAS PC 1678-106



LATITUDE: 51°31.3′ S
LONGITUDE: 25°28.0′ W
WATER DEPTH: 3091 M, 1690 FM
CORE LENGTH: 47 CM

LITHOLOGIC DESCRIPTION

0-3 cm: Foraminiferal, diatomaceous ooze, light olive gray (5Y 6/1); 10 mm pebble between 1-2 cm; very fine pebbles common throughout; slightly bioturbated; slightly washed along the side; sharp, irregular, inclined contact.

smear slide:	2 cm
Quartz	14
Feldspar	<1
Heavy minerals	1
Clay	1
Volcanic glass	3
Glauconite	<1
Carbonate unspecified	3
Foraminifera	28
Calcareous nannos	<1
Diatoms	40
Radiolarians	10
Sponge spicules	<1
Silicoflagellates	<1

3-28 cm: Sandy, diatomaceous ooze, light olive gray (5Y 5/2), abruptly changing between 8-19 cm to yellowish gray (5Y 7/2); zone of lesser sand content between 8-19 cm; fine and medium pebbles common throughout; moderately bioturbated; slightly washed along the side; sharp, irregular contact. NOTE: Smear slides are biased toward silt.

smear slides:	4 cm	22 cm
Quartz	32	33
Feldspar	<1	<1
Mica	<<1	<<1
Heavy minerals	3	3
Clay	7	8
Volcanic glass	5	2
Glauconite	<1	<1
Diatoms	42	45
Radiolarians	11	9
Sponge spicules	<1	<1
Silicoflagellates	<<1	<<1

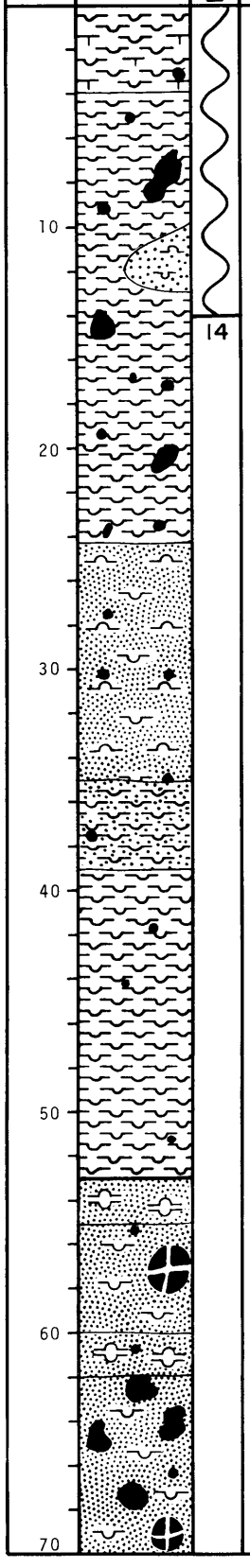
28-47 cm: Radiolarian, sandy, diatomaceous ooze, yellowish gray (5Y 7/2); 0.8 cm inclined lamina of radiolarian-bearing sand, olive gray (5Y 3/2), between 31-34 cm; pebbles up to 15 mm common throughout; moderately bioturbated; slightly washed along the side. NOTE: Smear slides are biased toward silt.

smear slides:	34 cm	44 cm
Quartz	30	28
Feldspar	<1	<1
Mica	<<1	<<1
Heavy minerals	3	3
Clay	2	2
Volcanic glass	3	2
Glauconite	1	1
Diatoms	46	50
Radiolarians	15	14
Sponge spicules	<1	<1
Silicoflagellates	<1	<1

Bottom topography: gently sloping; on the eastern apex of the Islas Orcadas Rise.

Logged by: Jones, Eggers, Hattner, Socci

ISLAS ORCADAS PC 1678-107



LATITUDE: 51°31.3′ S **WATER DEPTH:** 2986 M, 1633 FM

LONGITUDE: 25°25.9′ W **CORE LENGTH:** 401 CM

LITHOLOGIC DESCRIPTION

0-53 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), changing to light olive gray (5Y 5/2) between 4-11 cm; sand content varies with depth; volcanic ash sparsely scattered throughout; zone of higher radiolarian content between 39-53 cm; 4 cm layer of foraminiferal, diatomaceous ooze, yellowish gray (5Y 7/2), between 0-4 cm; 11 cm layer of diatomaceous, radiolarian sand, light olive gray (5Y 5/2), between 24-35 cm; 4 cm layer of sandy, diatomaceous ooze, light olive gray (5Y 6/1) between 35-39 cm; 3 cm lens of diatomaceous, radiolarian sand, light olive gray (5Y 5/2), between 10-13 cm; discontinuous stringers of diatom "cotton" between 8-9 cm; 20 mm angular pebble between 7-9 cm; fine to medium subangular pebbles common between 3-37 cm; very fine pebbles sparsely scattered throughout; moderately disturbed (washed) between 0-14 cm; slightly washed along the side between 14-53 cm; sharp contact.

smear slides:	(layer) 2 cm	17 cm
Quartz	5	8
Feldspar	<1	1
Mica	<<1	-
Heavy minerals	3	1
Clay	5	6
Volcanic glass	3	1
Carbonate unspecified	10	-
Foraminifera	16	-
Calcareous nannos	<<1	-
Diatoms	56	79
Radiolarians	2	3
Sponge spicules	<<1	<<1
Silicoflagellates	<1	1

53-110 cm: Diatomaceous sand, light olive gray (5Y 5/2); layers of radiolarian-diatomaceous sand, light olive gray (5Y 5/2), between 53-55 cm (1.8 cm), 60-62 cm (1.8 cm), and 73-77 cm (3.5 cm); 1.5 cm layer of glauconitic, radiolarian sand, moderate olive brown (5Y 4/4), between 81-83 cm; layers of sand, moderate olive brown (5Y 4/4), between 100-103 cm (3 cm) and 106-109 cm (2 cm); 5 mm discontinuous lamina of diatomaceous ooze, yellowish gray (5Y 7/2), between 66-67 cm; 0.4 cm lamina of sandy, diatomaceous ooze, yellowish gray (5Y 7/2), between 88-89 cm; 19 mm sedimentary clast between 56-58 cm, composed of radiolarian-diatomaceous sand, light olive gray (5Y 5/2); 9 mm sedimentary clast between 86-88 cm, composed of glauconitic, radiolarian- diatomaceous sand, light olive gray (5Y 5/2); sedimentary clasts between 68-70 cm (13 mm) and 98-100 cm (13 mm), composed of sandy, diatomaceous ooze, yellowish gray (5Y 7/2); medium to coarse subangular pebbles abundant between 72-86 cm, common between 61-68 cm and 96-100 cm; pebbles up to 5 mm common within layers of sand; pebbles up to 4 mm sparsely scattered throughout; slightly washed along the side; gradational contact.

smear slides:	69 cm	105 cm
Quartz	42	32
Feldspar	1	1
Heavy minerals	1	1
Clay	15	26
Volcanic glass	3	3
Glauconite	1	1
Diatoms	29	31
Radiolarians	8	5
Sponge spicules	<1	<1

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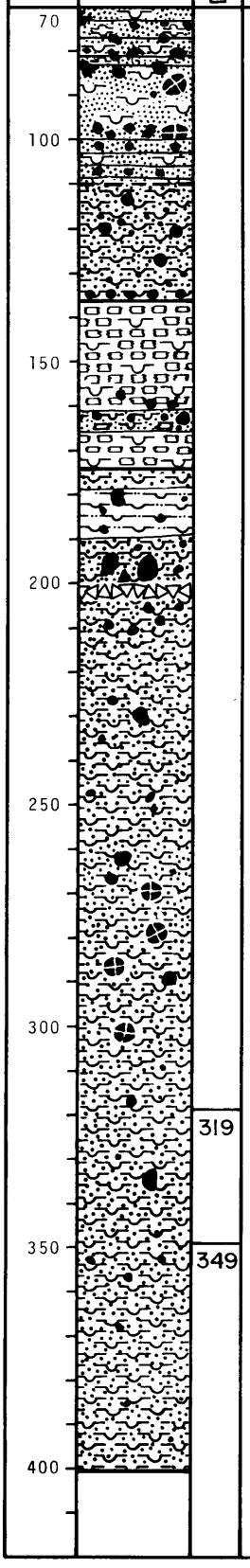
Logged by: Bergen, Graves, Goldstein

ISLAS ORCADAS PC 1678-107



LATITUDE: 51°31.3′ S
LONGITUDE: 25°25.9′ W
WATER DEPTH: 2986 M, 1633 FM
CORE LENGTH: 401 CM

LITHOLOGIC DESCRIPTION

110-136 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); laminae of diatomaceous ooze, yellowish gray (5Y 7/2), between 109-111 cm (0.4 cm) and 111-112 cm (0.2 cm); laminae up to 0.3 cm common between 121-136 cm, composed of diatomaceous ooze, yellowish gray (5Y 7/2); medium to coarse subrounded pebbles common between 113-129 cm; pebbles up to 5 mm common between 117-121 cm and 126-129 cm; pebbles up to 10 mm abundant between 133-136 cm; sharp contact.

smear slide:	116 cm
Quartz	19
Feldspar	<1
Heavy minerals	1
Clay	5
Volcanic glass	3
Glauconite	2
Diatoms	65
Radiolarians	5
Sponge spicules	<<1

136-174 cm: Diatomaceous, calcareous ooze, yellowish gray (5Y 8/1); zones of higher sand and silt content between 157-162 cm and 170-174 cm; diffuse, arcuate bands of higher clay content between 145-154 cm; 1.8 cm layer of sandy, calcareous-diatomaceous ooze, light olive gray (5Y 6/1), between 162-166 cm; irregular laminae up to 0.4 cm between 168-169 cm and 170-172 cm, composed of sandy, diatomaceous ooze, light olive gray (5Y 6/1); 9 mm and 7 mm subrounded pebbles between 163-164 cm; pebbles up to 5 mm common between 158-166 cm; slightly washed along the side; sharp contact.

smear slide:	144 cm
Quartz	3
Feldspar	<<1
Clay	4
Carbonate unspecified	35
Foraminifera	21
Calcareous nannos	<<1
Diatoms	37
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<<1

174-401 cm: Sandy, diatomaceous ooze, pale yellowish brown (10YR 6/2); 11 cm layer of muddy, diatomaceous ooze, light olive gray (5Y 6/1), between 179-190 cm; 0.6 cm lamina between 216-217 cm, composed of diatomaceous ooze, dusky yellow (5Y 6/4); 10 mm to 35 mm sedimentary clasts abundant between 269-303 cm, composed of diatomaceous clay, dusky yellow (5Y 6/4); angular pieces of pumice up to 20 mm abundant between 201-204 cm; subrounded pebbles between 179-182 cm (23 mm), 229-233 cm (21 mm), and 333-336 cm (20 mm); subangular pebbles between 193-198 cm (31 mm), 194-199 cm (30 mm), and 261-264 cm (19 mm); medium pebbles abundant between 203-211 cm, common between 182-200 cm and 353-358 cm, and sparsely scattered between 265-317 cm; pebbles up to 5 mm sparsely scattered throughout; slightly washed along the side.

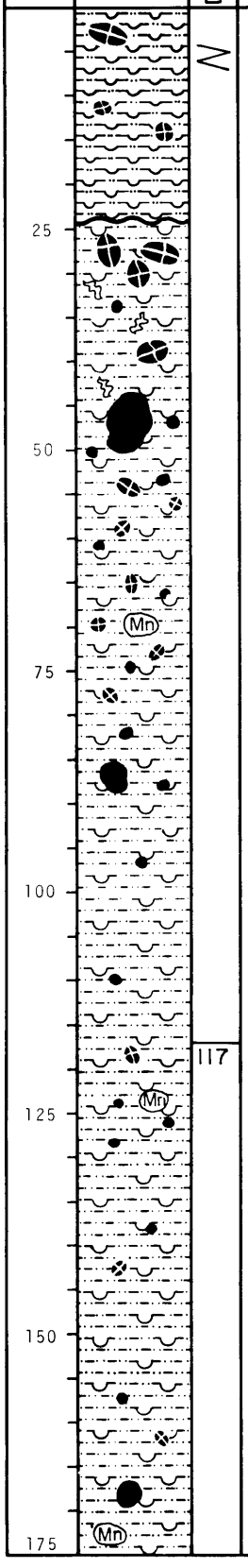
smear slides:	201 cm	342 cm
Quartz	16	25
Feldspar	<1	1
Heavy minerals	1	1
Clay	12	16
Volcanic glass	3	5
Rock fragments	-	<<1
Glauconite	-	<1
Diatoms	65	47
Radiolarians	3	5
Sponge spicules	<<1	<1
Silicoflagellates	<1	-

CORE CATCHER (24 grams): sediment is the same as that of overlying unit.

Bottom topography: gently sloping; on the eastern apex of the Islas Orcadas Rise.

Logged by: Bergen, Graves, Goldstein

ISLAS ORCADAS PC 1678-108



LATITUDE: 51°31.6′ S
LONGITUDE: 25°43.5′ W
WATER DEPTH: 2772 M, 1516 FM
CORE LENGTH: 444 CM

LITHOLOGIC DESCRIPTION

0-24 cm: Muddy, diatomaceous ooze, yellowish gray (5Y 8/1); zone containing foraminifera and calcareous nannofossils between 0-8 cm; stringers up to 0.2 cm rich in volcanic ash between 10-21 cm; 0.3 cm discontinuous stringers between 18-20 cm, composed of diatomaceous ooze, dusky yellow (5Y 6/4); 16 mm sedimentary clast between 2-4 cm, composed of muddy, diatomaceous ooze, yellowish gray (5Y 8/1); sedimentary clasts up to 4 mm sparsely scattered between 10-15 cm, composed of calcareous, muddy, diatomaceous ooze, very light gray (N8); moderately disturbed between 4-7 cm due to the presence of a fragment of the core liner; slightly washed along the side; sharp, irregular contact.

smear slides:	(zone) 1 cm	13 cm
Quartz	6	6
Feldspar	<1	2
Mica	<1	-
Heavy minerals	<1	<1
Clay	25	30
Volcanic glass	<1	<1
Carbonate unspecified	4	-
Foraminifera	6	-
Calcareous nannos	2	-
Diatoms	51	53
Radiolarians	6	7
Sponge spicules	<1	2
Silicoflagellates	<1	<<1

24-444 cm: Diatomaceous mud, dusky yellow (5Y 6/4); diatom content varies with depth; zone containing nannofossils between 30-50 cm; 0.4 cm inclined lamina of fine to medium sand between 307-310 cm; discontinuous stringers up to 0.3 cm common between 39-50 cm, composed of nannofossil ooze, white (N9). Sedimentary clasts as follows:

Sedimentary clasts between 26-29 cm (23 mm) and 38-40 cm (20 mm), composed of sandy, diatomaceous ooze, light olive gray (5Y 6/1);

Sedimentary clasts between 26-29 cm (30 mm) and 28-31 cm (30 mm), composed of nannofossil ooze, white (N9);

Sedimentary clasts between 53-55 cm (18 mm) and 248-251 cm (24 mm), composed of fine to medium sand, light olive gray (5Y 6/1);

Sedimentary clasts between 267-268 cm (4 mm), 268-269 cm (7 mm), and 272-273 cm (9 mm and 4 mm), composed of diatomaceous mud, moderate brown (5YR 4/4);

Sedimentary clasts up to 14 mm common between 53-79 cm, sparsely scattered between 117-398 cm, composed of diatomaceous mud, dusky yellow (5Y 6/4);

A 32 mm sedimentary clast between 423-427 cm, composed of muddy, diatomaceous ooze, white (N9);

Manganese nodules between 68-72 cm (27 mm), 122-125 cm (27 mm), 172-174 cm (20 mm), 356-359 cm (22 mm), 398-401 cm (30 mm), and 422-423 (10 mm); conglomerates, cemented with manganese oxides, between 85-89 cm (35 mm), 167-169 cm (18 mm), 205-209 cm (38 mm), 213-217 cm (40 mm), and 234-236 cm (18 mm); 62 mm subrounded pebble between 44-51 cm; fine to medium pebbles common between 46-89 cm and 124-219 cm, sparsely scattered elsewhere; moderately bioturbated between 30-45 cm and 421-444 cm; highly disturbed between 421-444 cm.

(Smear slide data on next page.)

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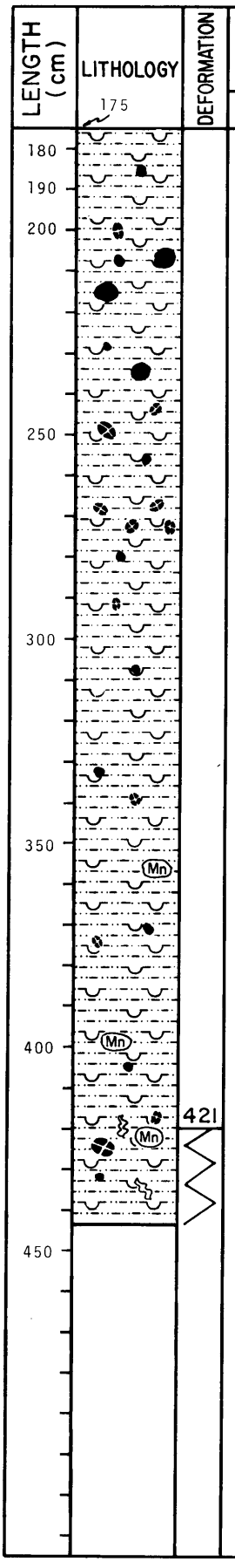
Logged by: Bergen, Eggers, Graves, Jones

ISLAS ORCADAS PC 1678-108



LATITUDE: 51°31.6′ S
LONGITUDE: 25°43.5′ W
WATER DEPTH: 2772 M, 1516 FM
CORE LENGTH: 444 CM

LITHOLOGIC DESCRIPTION

smear slides:

	84 cm	400 cm
Quartz	11	3
Feldspar	1	2
Heavy minerals	1	<1
Clay	48	54
Volcanic glass	1	<1
Diatoms	36	40
Radiolarians	2	1
Sponge spicules	<1	<1
Silicoflagellates	<<1	<1

CORE CUTTER (132 grams): Sandy, diatomaceous ooze, yellowish gray (5Y 7/2).

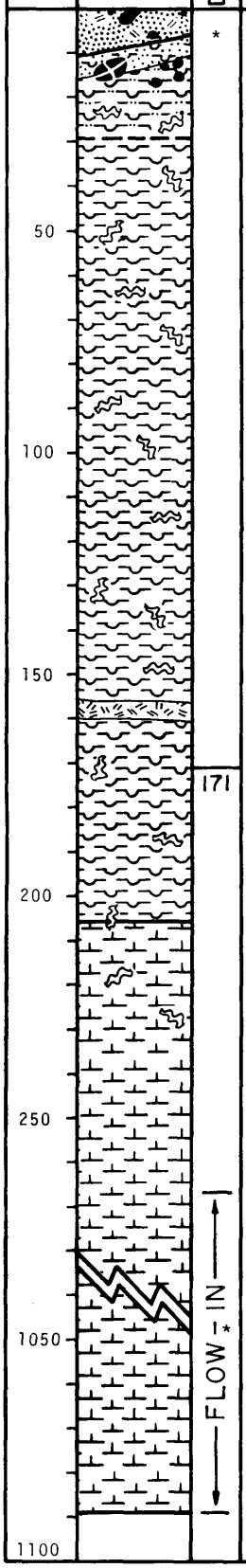
smear slide:

	cutter
Quartz	22
Feldspar	<<1
Heavy minerals	1
Clay	3
Volcanic glass	3
Foraminifera	1
Calcareous nannos	1
Diatoms	62
Radiolarians	7
Sponge spicules	<<1
Silicoflagellates	<<1

Bottom topography: gently sloping; on the apex of the Islas Orcadas Rise.

Logged by: Bergen, Eggers, Graves, Jones

ISLAS ORCADAS PC 1678-109



LATITUDE: 50°46.3' S
LONGITUDE: 26°04.1' W
WATER DEPTH: 2999 M, 1640 FM
CORE LENGTH: 1089 CM

LITHOLOGIC DESCRIPTION

0-10 cm: Fine sand, light olive brown (5Y 5/6), moderately sorted; volcanic ash common throughout; 38 mm pebble between 7-11 cm; subrounded pebbles up to 10 mm common throughout; sharp, inclined contact.

smear slide: 8 cm

Quartz	72	Glauconite	5
Feldspar	1	Diatoms	5
Heavy minerals	3	Radiolarians	7
Clay	6	Sponge spicules	<1
Volcanic glass	1		

10-29 cm: Muddy, diatomaceous ooze, dusky yellow (5Y 6/4); volcanic ash sparsely scattered throughout; 2 cm layer between 10-12 cm composed of sandy, muddy, diatomaceous ooze, light olive gray (5Y 6/1), with sharp, inclined upper and lower contacts; 34 mm sedimentary clast between 12-16 cm, composed of diatomaceous, sandy mud, light olive brown (5Y 5/6); 16 mm conglomerate between 12-14 cm; subrounded pebbles between 13-14 cm (10mm), 14-16 cm (12 mm), and 15-17 cm (18 mm); moderately bioturbated between 23-29 cm; gradational contact.

smear slide: 22 cm

Quartz	14	Glauconite	<1
Feldspar	2	Diatoms	55
Heavy minerals	<1	Radiolarians	3
Clay	25	Sponge spicules	<1
Volcanic glass	1	Silicoflagellates	<1

29-206 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); 4 cm layer between 156-160 cm, composed of volcanic ash, dusky yellowish brown (10YR 2/2); 0.5 cm to 1 cm laminae of pure diatomaceous ooze having "cotton" texture, yellowish gray (5Y 8/1), between 169-170 cm, 178-179 cm, and 192-193 cm; volcanic ash sparsely scattered throughout; moderately bioturbated; sharp, bioturbated contact.

smear slides: 46 cm, 113 cm

	46 cm	113 cm		46 cm	113 cm
Quartz	2	3	Glauconite	-	3
Feldspar	<1	1	Diatoms	92	85
Clay	3	3	Radiolarians	3	5
Volcanic glass	<1	-	Silicoflagellates	<<1	-

206-1089 cm: Nannofossil ooze, yellowish gray (5Y 7/2), gradationally changing at 224 cm to white (N9); zone of higher diatom content between 206-224 cm, decreasing with depth; slightly bioturbated between 206-231 cm; abrupt change to flow-in at 266 cm.

smear slide: 245 cm

Feldspar	<1	Diatoms	12
Clay	<<1	Radiolarians	3
Foraminifera	<<1	Silicoflagellates	<1
Calcareous nannos	85		

CORE CATCHER (244 grams): Diatomaceous, nannofossil ooze, very pale orange (10YR 8/2), and diatomaceous ooze, yellowish gray (5Y 7/2); flow-in.

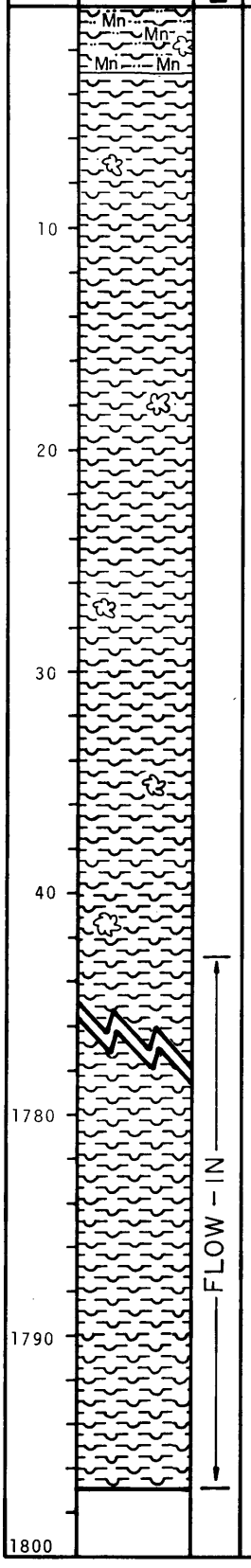
CORE CUTTER (27 grams): Nannofossil, diatomaceous ooze, yellowish gray (5Y 7/2), and diatomaceous, nannofossil ooze, very pale orange (10YR 8/2); flow-in.

Bottom topography: flat; on a very broad and flat sedimentary cover which blankets the central and eastern apex of the Islas Orcadas Rise.

*NOTE: Sediment between 0-5 cm and 458-460 cm is bagged.

Logged by: Eggers, Graves, Socci, Hattner

ISLAS ORCADAS PC 1678-III



LATITUDE: 48°59.9′ S WATER DEPTH: 4331 M, 2368 FM

LONGITUDE: 26°57.6′ W CORE LENGTH: 1797 CM

LITHOLOGIC DESCRIPTION

0-1797 cm: Diatomaceous ooze, grayish olive (10Y 4/2), changing abruptly to light olive gray (5Y 5/2) between 12-15 cm; mottled throughout; zone of decreased mud content between 12-15 cm; 3 cm layer of muddy, diatomaceous ooze, light olive gray (5Y 5/2), between 0-3 cm, highly stained with manganese oxides; gradational change to flow-in at 43 cm.

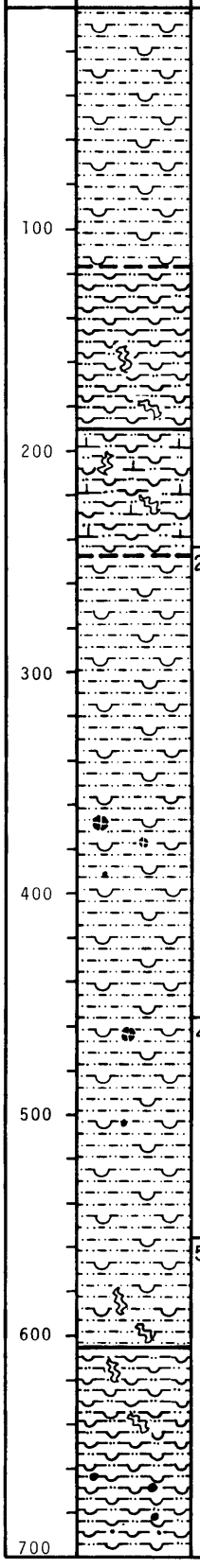
smear slides:	(layer) 3 cm	38 cm
Quartz	3	5
Feldspar	<1	<1
Heavy minerals	1	<1
Clay	40	10
Volcanic glass	1	<1
Glauconite	<<1	-
Micro-Mn nodules	<1	1
Diatoms	54	82
Radiolarians	1	2
Sponge spicules	<1	<1
Silicoflagellates	<<1	<1

CORE CUTTER AND CATCHER (19 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: flat; on the abyssal plain approximately 75 km east of the northern portion of the Islas Orcadas Rise.

Logged by: Graves

ISLAS ORCADAS PC 1678-112



LATITUDE: 48°09.3' S
LONGITUDE: 27°58.7' W
WATER DEPTH: 4374 M, 2392 FM
CORE LENGTH: 1761 CM

LITHOLOGIC DESCRIPTION

0-117 cm: Diatomaceous mud, light olive gray (5Y 5/2); diatom content increases with depth; volcanic ash, rock fragments up to 3 mm, and pyrite in 1 mm patches sparsely scattered throughout; gradational contact.

smear slides:	15 cm	74 cm		15 cm	74 cm
Quartz	31	16	Micro-Mn nodules	1	1
Feldspar	-	<1	Carbonate unspecified	-	<1
Mica	<1	<1	Diatoms	19	26
Heavy minerals	2	<1	Radiolarians	<1	2
Clay	46	54	Sponge spicules	-	<1
Volcanic glass	1	1	Silicoflagellates	-	<1

117-190 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); slightly bioturbated between 157-190 cm; sharp contact.

smear slide:	136 cm		
Quartz	24	Micro-Mn nodules	<1
Mica	<1	Diatoms	49
Heavy minerals	2	Radiolarians	3
Clay	20	Sponge spicules	1
Volcanic glass	1	Silicoflagellates	<1

190-248 cm: Nannofossil, muddy, diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash, glauconite, and pyrite in 1 mm patches sparsely scattered throughout; slightly bioturbated between 200-230 cm; gradational contact.

smear slide:	32 cm		
Quartz	15	Foraminifera	6
Feldspar	<1	Calcareous nannos	20
Heavy minerals	2	Diatoms	40
Clay	13	Radiolarians	<<1
Volcanic glass	1	Sponge spicules	<<1
Carbonate unspecified	3	Silicoflagellates	<<1

248-605 cm: Diatomaceous mud, light olive gray (5Y 5/2); silt content decreases with depth, and diatom content increases with depth; volcanic ash and pyrite in 1 mm patches sparsely scattered throughout; sedimentary clasts between 365-371 cm (55 mm), 375-378 cm (20 mm), and 460-465 cm (41 mm), composed of glauconitic, diatomaceous mud, light olive brown (5Y 5/6), slightly indurated; rounded pebbles between 405-406 cm (5 mm) and 502-504 cm (12 mm); slightly bioturbated between 580-605 cm; sharp contact.

smear slides:	297 cm	430 cm	572 cm
Quartz	37	30	22
Feldspar	<1	<1	<1
Mica	<<1	<<1	-
Heavy minerals	2	1	2
Clay	28	20	25
Volcanic glass	1	1	1
Micro-Mn nodules	1	1	-
Carbonate unspecified	-	<<1	-
Foraminifera	<<1	-	-
Diatoms	30	45	49
Radiolarians	1	2	1
Sponge spicules	<<1	<1	<1
Silicoflagellates	<1	<1	<1

605-708 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); zone rich in silt, sand, and very fine pebbles up to 3 mm between 690-691 cm; 7 mm rounded pebble between 668-669 cm; very fine pebbles up to 3 mm sparsely scattered between 660-690 cm; slightly bioturbated between 605-646 cm and 700-708 cm; sharp, bioturbated contact.

smear slides:	638 cm	706 cm		638 cm	706 cm
Quartz	20	34	Micro-Mn nodules	<1	<1
Feldspar	<1	<1	Diatoms	60	49
Heavy minerals	1	2	Radiolarians	1	3
Clay	17	12	Sponge spicules	<<1	<1
Volcanic glass	1	<1	Silicoflagellates	<<1	<<1
Glauconite	<1	-			

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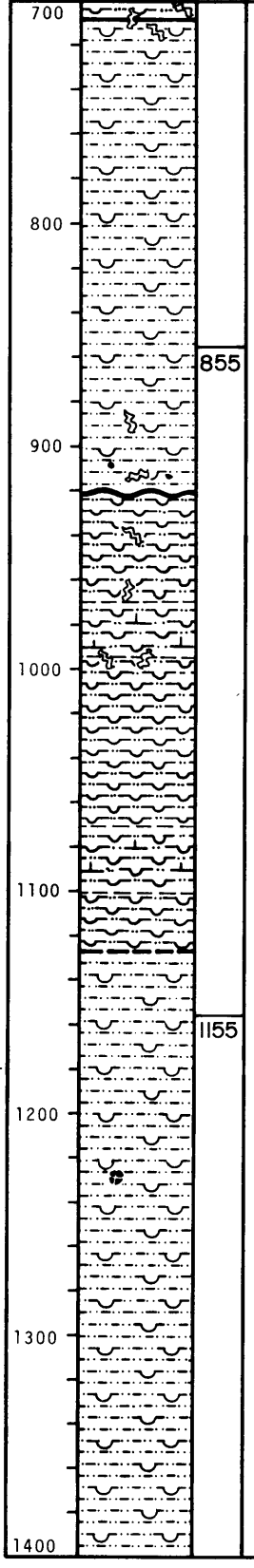
Logged by: Kaharoeddin, Graves, Humphreys

ISLAS ORCADAS PC 1678-112



LATITUDE: 48°09.3′ S
LONGITUDE: 27°58.7′ W
WATER DEPTH: 4374 M, 2392 FM
CORE LENGTH: 1761 CM

LITHOLOGIC DESCRIPTION

708-921 cm: Diatomaceous mud, light olive gray (5Y 5/2); diatom content increases with depth between 850-921 cm; zone of higher clay content between 708-730 cm; pyrite in patches up to 2 mm common between 730-891 cm, sparsely scattered between 891-921 cm; volcanic ash, glauconite, and rock particles up to 3 mm common between 898-921 cm; slightly bioturbated between 708-714 cm and 885-921 cm; sharp, irregular contact.

smear slides:	714 cm	886 cm		714 cm	886 cm
Quartz	11	32	Micro-Mn nodules	<1	-
Feldspar	<1	1	Carbonate unspecified	1	-
Mica	1	-	Diatoms	27	39
Heavy minerals	1	2	Radiolarians	1	2
Clay	57	23	Sponge spicules	1	<<1
Volcanic glass	<1	1	Silicoflagellates	<1	<1
Glauconite	<<1	-			

921-1127 cm: Muddy, diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing to light olive gray (5Y 5/2) at 1026 cm; layers of nannofossil, muddy, diatomaceous ooze between 970-995 cm, and between 1070-1100 cm, both with gradational boundaries; pyrite in patches up to 2 mm common between 1070-1127 cm, sparsely scattered between 940-1070 cm; moderately bioturbated between 989-1000 cm, slightly bioturbated between 921-989 cm and 1000-1127 cm; gradational contact.

smear slides:	926 cm	(layer) 974 cm	1011 cm	(layer) 1083 cm	1117 cm
Quartz	20	12	18	12	18
Feldspar	1	<1	<1	2	1
Mica	-	-	<1	<1	1
Heavy minerals	2	-	<1	2	2
Clay	26	15	23	14	23
Volcanic glass	-	-	1	-	1
Micro-Mn nodules	2	-	<1	-	<1
Carbonate unspecified	<1	2	2	4	1
Foraminifera	-	2	<1	2	-
Calcareous nannos	-	30	9	22	<1
Diatoms	49	38	44	39	50
Radiolarians	<1	1	2	2	3
Sponge spicules	<<1	<1	1	1	<1
Silicoflagellates	<1	<<1	<<1	<1	<<1

1127-1476 cm: Diatomaceous mud, light olive gray (5Y 5/2); zones of higher diatom content between 1362-1420 cm and 1440-1460 cm; pyrite in patches up to 2 mm common between 1177-1262 cm; stringers of pyrite up to 2 cm long common between 1420-1440 cm, sparsely scattered between 1370-1405 cm and 1440-1450 cm; sedimentary clasts between 1227-1230 cm (25 mm) and 1468-1475 cm (70 mm), composed of diatomaceous mud, dusky yellow (5Y 6/4), soft; 1 cm angular pebble in the center of sedimentary clast between 1227-1230 cm; sharp, inclined contact.

smear slides:	1284 cm	1434 cm
Quartz	25	30
Feldspar	<1	<1
Mica	1	-
Heavy minerals	2	2
Clay	28	23
Volcanic glass	<1	<1
Micro-Mn nodules	<1	-
Carbonate unspecified	<1	<<1
Diatoms	42	45
Radiolarians	2	<1
Sponge spicules	<1	<1
Silicoflagellates	<1	<<1

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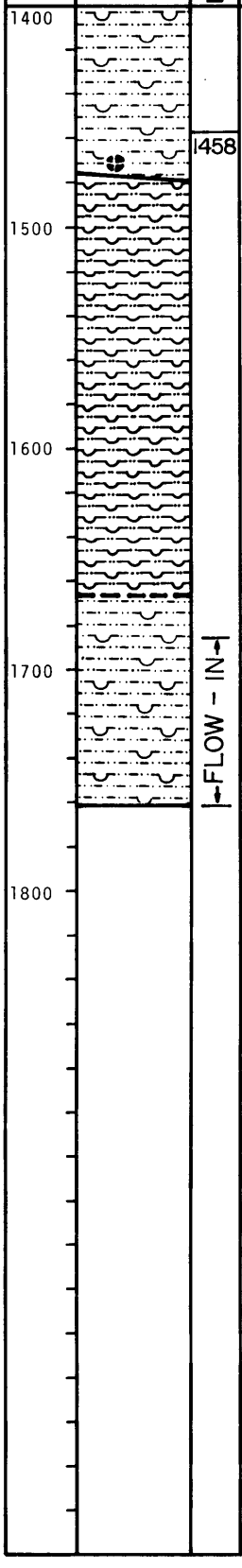
ISLAS ORCADAS PC 1678-112



LATITUDE: 48°09.3′ S
LONGITUDE: 27°58.7′ W
WATER DEPTH: 4374 M, 2392 FM
CORE LENGTH: 1761 CM

LITHOLOGIC DESCRIPTION

1476-1666 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); pyrite in patches up to 2 mm common between 1500-1530 cm and 1560-1580 cm; stringers of pyrite up to 2 cm long common between 1580-1640 cm; gradational contact.

smear slide:	1563 cm
Quartz	15
Feldspar	<1
Mica	<<1
Heavy minerals	<1
Clay	20
Volcanic glass	1
Micro-Mn nodules	1
Carbonate unspecified	<<1
Diatoms	60
Radiolarians	3
Sponge spicules	<1
Silicoflagellates	<1

1666-1761 cm: Diatomaceous mud, light olive gray (5Y 5/2); pyrite in patches up to 2 mm common between 1666-1686 cm; gradational change to flow-in at 1686 cm; flow-in between 1686-1761 cm.

smear slide:	1682 cm
Quartz	18
Feldspar	1
Mica	<1
Heavy minerals	<1
Clay	44
Volcanic glass	2
Micro-Mn nodules	<1
Carbonate unspecified	<1
Diatoms	35
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<<1

CORE CUTTER AND CATCHER (184 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; on the abyssal plain at the southeastern extremity of the Argentine Basin, approximately 41-45 km northeast of the Malvinas (Falkland) Fracture Zone and northeasternmost portion of the Islas Orcadas Rise.

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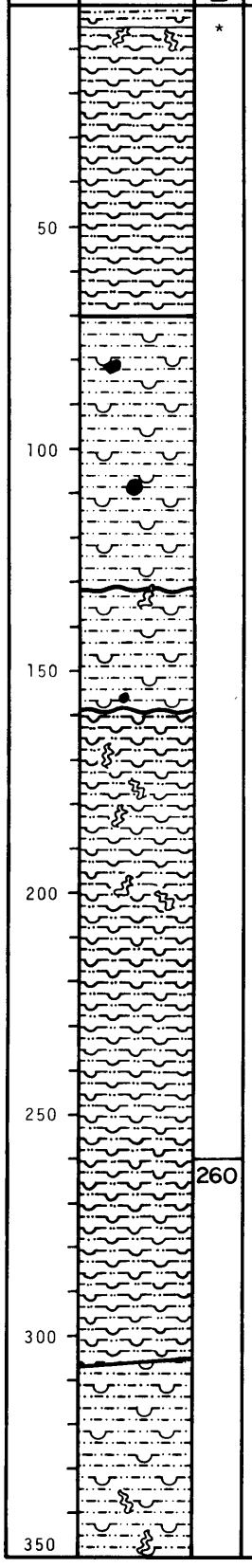
ISLAS ORCADAS PC 1678-114



LATITUDE: 46°40.9' S
LONGITUDE: 30°07.4' W
WATER DEPTH: 4716 M, 2579 FM
CORE LENGTH: 1766 CM

LITHOLOGIC DESCRIPTION

0-70 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); diatom content decreases with depth between 54-70 cm; layer of diatomaceous mud between 0-5 cm, moderate brown (5YR 4/4); patches (up to 2 mm) of manganese oxide staining common between 5-8 cm; slightly bioturbated between 0-8 cm; sharp contact.

smear slides:	(layer) 5 cm	19 cm		(layer) 5 cm	19 cm
Quartz	31	18	Glauconite	<1	-
Feldspar	<1	<1	Diatoms	40	63
Mica	1	-	Radiolarians	3	3
Heavy minerals	4	2	Sponge spicules	<1	1
Clay	20	12	Silicoflagellates	<<1	<1
Volcanic glass	1	1			

70-132 cm: Diatomaceous mud (color varies): between 70-90 cm and 101-114 cm, dusky yellow (5Y 6/4), between 90-101 cm and 114-121 cm, light olive gray (5Y 5/2), and between 121-132 cm, light olive brown (5Y 5/6); zone of higher silt content between 105-113 cm; 22 mm, flat, angular pebble between 80-83 cm; 36 mm rounded pebble between 107-111 cm; sharp, irregular, bioturbated contact.

smear slides:	96 cm	103 cm	126 cm
Quartz	23	23	17
Feldspar	<1	<1	<1
Mica	<1	<1	<1
Heavy minerals	2	2	<1
Clay	30	33	40
Volcanic glass	1	1	2
Carbonate unspecified	3	<1	-
Diatoms	39	40	37
Radiolarians	2	1	3
Sponge spicules	<1	<1	1
Silicoflagellates	<<1	<<1	<1

132-159 cm: Diatomaceous mud, light olive gray (5Y 5/2); zone of higher silt content between 154-159 cm; volcanic ash and pyrite in small patches up to 1 mm common between 142-145 cm; 4 mm pebble berween 155-156 cm; sharp, irregular contact.

smear slide:	143 cm		
Quartz	22	Volcanic glass	1
Feldspar	<1	Glauconite	<<1
Mica	<1	Diatoms	35
Heavy minerals	1	Radiolarians	1
Clay	39	Sponge spicules	1

159-306 cm: Muddy, diatomaceous ooze (color varies): between 159-184 cm and 197-211 cm, dusky yellow (5Y 6/4), between 184-197 cm and 211-306 cm, light olive gray (5Y 5/2); zone of higher mud content between 211-222 cm; pyrite in patches up to 1 mm sparsely scattered between 211-306 cm; stringer of clay, light olive gray (5Y 5/2), between 163-164 cm; moderately bioturbated between 166-184 cm and 197-204 cm; slightly washed along the side between 260-306 cm; sharp, inclined contact.

smear slides:	193 cm	(zone) 216 cm	285 cm
Quartz	20	28	25
Feldspar	<1	1	<1
Heavy minerals	1	2	1
Clay	20	27	18
Volcanic glass	1	1	<1
Glauconite	-	<1	-
Diatoms	53	37	52
Radiolarians	4	3	3
Sponge spicules	1	1	<<1
Silicoflagellates	<<1	-	1

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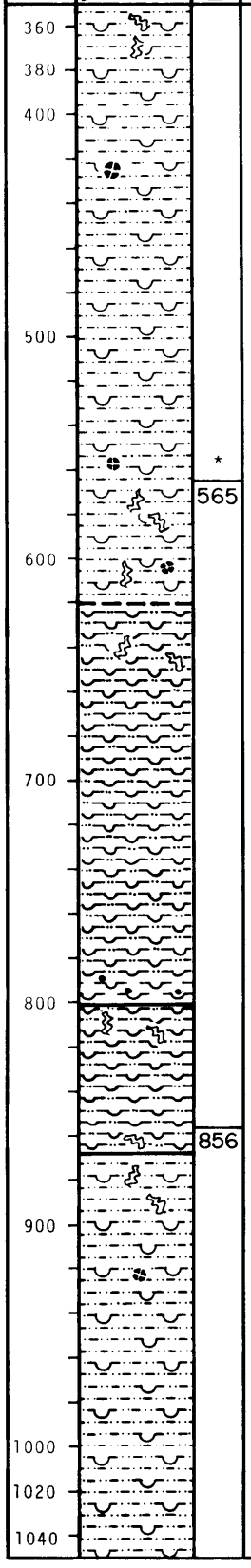
Logged by: Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-114



LATITUDE: 46°40.9' S
LONGITUDE: 30°07.4' W
WATER DEPTH: 4716 M, 2579 FM
CORE LENGTH: 1766 CM

LITHOLOGIC DESCRIPTION

306-620 cm: Diatomaceous mud, dusky yellow (5Y 6/4) between 306-320 cm, light olive gray (5Y 5/2) between 320-620 cm; zone of higher silt content between 440-557 cm; pyrite in patches up to 1 mm sparsely scattered between 440-530 cm; sedimentary clasts between 421-424 cm (25 mm), 557-559 cm (20 mm), and 604-607 cm (18 mm), composed of clay, dusky yellow (5Y 6/4), slightly indurated; moderately bioturbated between 335-370 cm and 570-593 cm; slightly bioturbated between 600-620 cm; slightly washed along the side between 306-311 cm; gradational contact.

smear slides:	310 cm	387 cm	(zone) 486 cm
Quartz	24	20	35
Feldspar	<1	1	<1
Mica	<1	<1	<<1
Heavy minerals	2	1	2
Clay	26	38	20
Volcanic glass	1	2	3
Glauconite	-	1	-
Carbonate unspecified	-	<1	<<1
Diatoms	44	35	36
Radiolarians	2	2	3
Sponge spicules	1	<1	1
Silicoflagellates	<1	-	<<1

620-802 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); zone of higher silt content between 799-802 cm; pyrite in patches up to 1 mm sparsely scattered throughout; angular pebbles up to 3 mm sparsely scattered between 788-800 cm; slightly bioturbated between 636-648 cm; sharp contact.

smear slides:	657 cm	772 cm
Quartz	14	
Feldspar	<1	<1
Mica	<1	-
Heavy minerals	<1	1
Clay	30	18
Volcanic glass	2	<1
Carbonate unspecified	<1	-
Diatoms	52	66
Radiolarians	2	5
Sponge spicules	<1	<1
Silicoflagellates	<1	<1

802-868 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); zone of higher silt content between 845-855 cm and 859-868 cm; moderately bioturbated between 802-817 cm; slightly bioturbated between 863-868 cm; sharp contact.

smear slides:	809 cm	(zone) 864 cm
Quartz	18	28
Feldspar	<1	<1
Heavy minerals	2	<1
Clay	27	15
Volcanic glass	1	<1
Diatoms	50	54
Radiolarians	2	3
Sponge spicules	<1	<1
Silicoflagellates	<1	-

868-1766 cm: Diatomaceous mud, light olive gray (5Y 5/2); pyrite in patches up to 2 mm sparsely scattered between 935-1117 cm; 33 mm sedimentary clast between 920-924 cm, composed of mud, light olive brown (5Y 5/6), slightly indurated; slightly bioturbated between 868-898 cm; gradational change to flow-in at 1117 cm; flow-in between 1117-1766 cm.

(Smear slide data on next page.)

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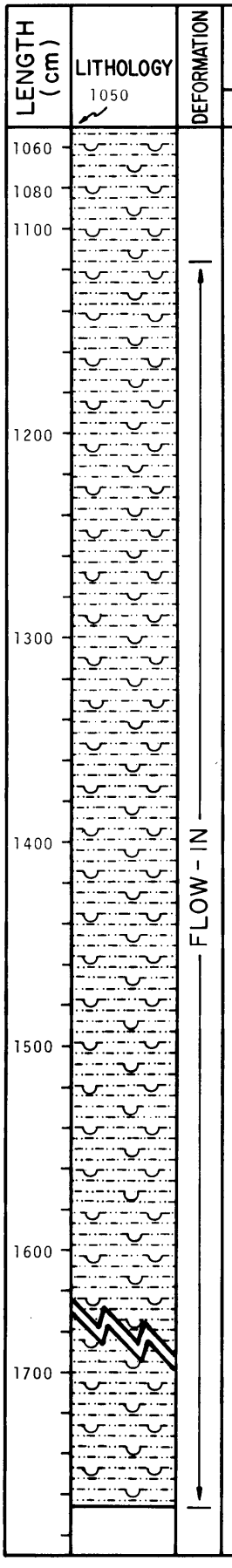
Logged by: Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-114



LATITUDE: 46°40.9′ S
LONGITUDE: 30°07.4′ W
WATER DEPTH: 4716 M, 2579 FM
CORE LENGTH: 1766 CM

LITHOLOGIC DESCRIPTION

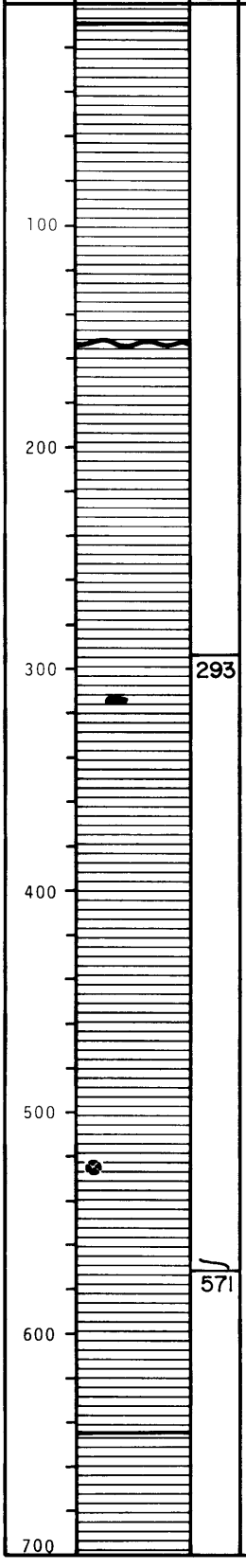
smear slides:	872 cm	952 cm	1075 cm
Quartz	25	23	24
Feldspar	<1	<1	<1
Mica	<1	-	-
Heavy minerals	1	3	2
Clay	27	33	37
Volcanic glass	-	-	1
Carbonate unspecified	<<1	-	-
Diatoms	45	40	35
Radiolarians	2	1	1
Sponge spicules	<1	<1	-
Silicoflagellates	<<1	<1	-

Bottom topography: flat; abyssal plain in the southeastern Argentine Basin.

*NOTE: Sediment between 0-2 cm and 564-565 cm is bagged.

Logged by: Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-115



LATITUDE: 46°00.6' S
LONGITUDE: 31°05.8' W
WATER DEPTH: 5047 M, 2760 FM
CORE LENGTH: 1780 CM

LITHOLOGIC DESCRIPTION

0-1780 cm: Pelagic clay, varying cyclically in color and in diatom content; in each cycle the color grades downward from greenish gray (5GY 6/1) to grayish olive (10Y 4/2), with the exception of the first cycle; in each cycle the diatom content decreases with depth; manganese oxide patches abundant throughout; the cycles, from top to bottom are:

0-9 cm: Pelagic clay, dusky yellow (5Y 6/4), changing abruptly at 8 cm to grayish olive (10Y 4/2); sharp contact.

smear slide:	6 cm
Quartz	16
Heavy minerals	<1
Clay	60
Micro-Mn nodules	<1
Diatoms	24
Radiolarians	<1
Sponge spicules	<1

9-153 cm: Pelagic clay, greenish gray (5GY 6/1), changing abruptly at 16 cm to grayish olive (10Y 4/2); sharp, irregular contact.

smear slide:	30 cm
Quartz	23
Feldspar	1
Heavy minerals	<1
Clay	53
Micro-Mn nodules	1
Diatoms	21
Radiolarians	<1
Sponge spicules	1

153-644 cm: Pelagic clay, greenish gray (5GY 6/1), changing gradationally at 172 cm to grayish olive (10Y 4/2); 40 mm sedimentary clast between 523-527 cm, composed of clay, moderate olive brown (5Y 4/4), soft; 12 mm angular pebble between 315-317 cm; slightly disturbed (washed) between 566-570 cm; sharp contact.

smear slides:	156 cm	479 cm	567 cm
Quartz	11	16	16
Feldspar	<1	<1	<1
Mica	-	-	<1
Heavy minerals	<1	<1	<1
Clay	66	69	67
Volcanic glass	-	<<1	1
Glauconite	<1	-	-
Micro-Mn nodules	<1	1	-
Diatoms	19	13	15
Radiolarians	3	1	1
Sponge spicules	1	<<1	<<1
Silicoflagellates	<1	<<1	<<1

644-724 cm: Pelagic clay, greenish gray (5GY 6/1), changing gradationally at 665 cm to grayish olive (10Y 4/2); 1.4 cm lamina of diatomaceous mud, dusky yellow (5Y 6/4), between 650-652 cm; sharp contact.

smear slides:	646 cm	718 cm
Quartz	12	12
Feldspar	<<1	<1
Mica	-	<<1
Heavy minerals	<<1	<1
Clay	59	57
Volcanic glass	-	1
Micro-Mn nodules	-	<1
Diatoms	27	30
Radiolarians	2	<1
Sponge spicules	<<1	<<1
Silicoflagellates	<1	<<1

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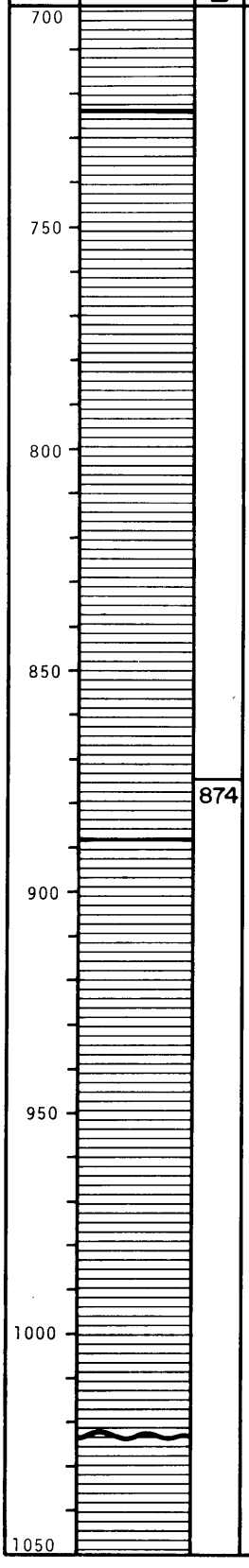
Logged by: Humphreys, Graves, Kaharoeddin

ISLAS ORCADAS PC 1678-115

LATITUDE: 46°00.6′ S
LONGITUDE: 31°05.8′ W
WATER DEPTH: 5047 M, 2760 FM
CORE LENGTH: 1780 CM



LITHOLOGIC DESCRIPTION

724-888 cm: Pelagic clay, greenish gray (5GY 6/1), changing gradationally at 740 cm to grayish olive (10Y 4/2); sharp contact.

smear slides:	725 cm	784 cm	861 cm
Quartz	19	19	17
Feldspar	<1	<1	1
Heavy minerals	<1	<1	-
Clay	58	60	67
Volcanic glass	<<1	<<1	<<1
Micro-Mn nodules	<<1	1	<1
Diatoms	23	20	15
Radiolarians	<1	<1	<1
Sponge spicules	<1	<1	<1
Silicoflagellates	<<1	<<1	-

888-1018 cm: Pelagic clay, greenish gray (5GY 6/1), gradationally changing at 902 cm to grayish olive (10Y 4/2); sharp, irregular contact.

smear slide:	925 cm
Quartz	9
Feldspar	<1
Heavy minerals	1
Clay	66
Micro-Mn nodules	<1
Foraminifera	<1
Diatoms	22
Radiolarians	2
Sponge spicules	<1
Silicoflagellates	<<1

1018-1089 cm: Pelagic clay, greenish gray (5GY 6/1), gradationally changing at 1045 cm to grayish olive (10Y 4/2); sharp, irregular contact.

smear slide:	1064 cm
Quartz	15
Feldspar	<1
Heavy minerals	<<1
Clay	61
Volcanic glass	<<1
Micro-Mn nodules	<1
Diatoms	24
Radiolarians	<1
Sponge spicules	<<1

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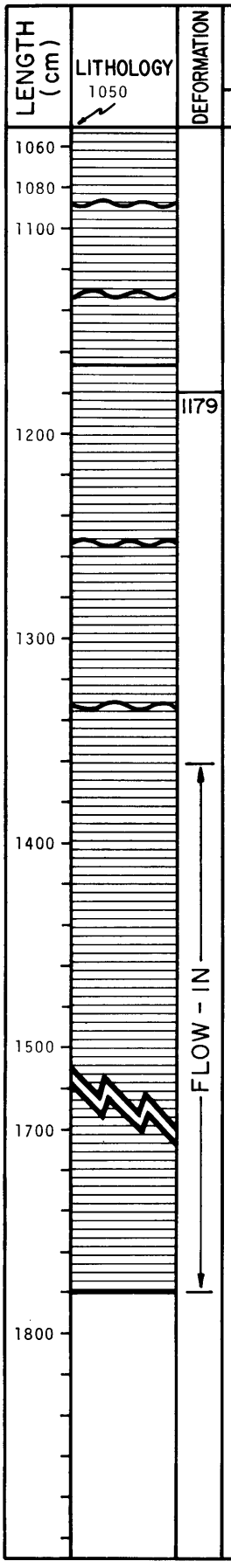
Logged by: Humphreys, Graves, Kaharoeddin

ISLAS ORCADAS PC 1678-115



LATITUDE: 46°00.6′ S WATER DEPTH: 5047 M, 2760 FM
LONGITUDE: 31°05.8′ W CORE LENGTH: 1780 CM

LITHOLOGIC DESCRIPTION

1089-1133 cm: Pelagic clay, greenish gray (5GY 6/1), gradationally changing at 1101 cm to grayish olive (10Y 4/2); sharp, irregular contact.

smear slide: 1117 cm

Quartz	18	Micro-Mn nodules	<1
Feldspar	<1	Diatoms	26
Heavy minerals	1	Radiolarians	3
Clay	51	Sponge spicules	<1
Volcanic glass	1	Silicoflagellates	<<1

1133-1166 cm: Pelagic clay, greenish gray (5GY 6/1), gradationally changing at 1140 cm to grayish olive (10Y 4/2); sharp contact.

smear slide: 1134 cm

Quartz	14	Diatoms	26
Feldspar	<1	Radiolarians	1
Heavy minerals	<1	Sponge spicules	<<1
Clay	59	Silicoflagellates	<<1
Volcanic glass	<1		

1166-1253 cm: Pelagic clay, greenish gray (5GY 6/1), gradationally changing at 1189 cm to grayish olive (10Y 4/2); 1 cm lamina of mud between 1298-1299 cm; sharp, irregular contact.

smear slide: 1231 cm

Quartz	14	Micro-Mn nodules	<1
Feldspar	<1	Diatoms	28
Heavy minerals	<1	Radiolarians	<1
Clay	57	Sponge spicules	<1
Volcanic glass	1	Silicoflagellates	<<1

1253-1346 cm: Pelagic clay, greenish gray (5GY 6/1) between 1253-1269 cm and 1279-1290 cm; grayish olive (10Y 4/2) between 1269-1279 cm and 1290-1346 cm; 10 mm, inclined stringer of mud between 1268-1277 cm; sharp, irregular contact.

smear slide: 1286 cm

Quartz	20	Diatoms	19
Feldspar	<1	Radiolarians	1
Heavy minerals	<1	Sponge spicules	1
Clay	59	Silicoflagellates	<<1
Micro-Mn nodules	<1		

1346-1780 cm: Pelagic clay, greenish gray (5GY 6/1), gradationally changing at 1359 cm to grayish olive (10Y 4/2); gradational change to flow-in at 1361 cm.

smear slide: 1353 cm

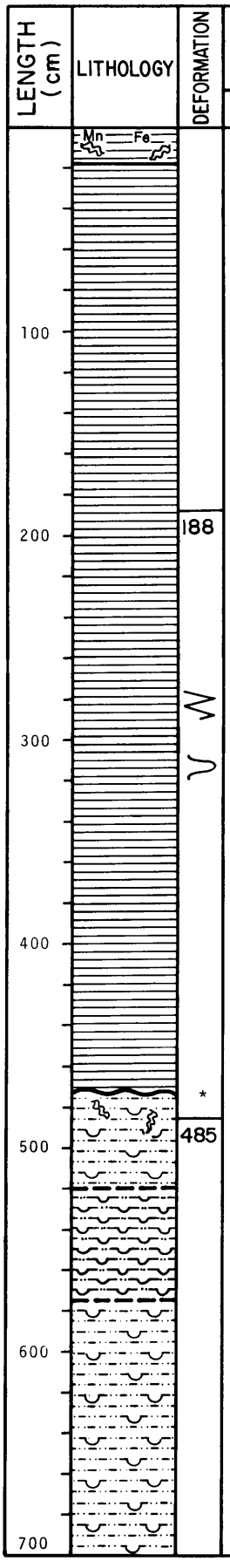
Quartz	15	Micro-Mn nodules	<1
Feldspar	<1	Diatoms	22
Heavy minerals	<1	Radiolarians	<1
Clay	63	Sponge spicules	<1
Volcanic glass	<<1	Silicoflagellates	<<1

CORE CUTTER AND CATCHER (150 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: very gently sloping; on the abyssal plain of the southeastern Argentine Basin.

Logged by: Humphreys, Graves, Kaharoeddin

ISLAS ORCADAS PC 1678-116



LATITUDE: 44°59.9′ S WATER DEPTH: 5044 M, 2758 FM

LONGITUDE: 32°06.5′ W CORE LENGTH: 1700 CM

LITHOLOGIC DESCRIPTION

0-19 cm: Pelagic clay (color varies): between 0-5 cm, pale brown (5YR 5/2), between 5-10 cm, light brown (5YR 6/4), and between 10-19 cm, dusky yellow (5Y 6/4); zone of higher diatom content between 0-5 cm; highly stained with iron and manganese oxides between 0-5 cm; moderately bioturbated throughout; sharp contact.

smear slides:	(zone) 3 cm	15 cm		(zone) 3 cm	15 cm
Quartz	24	23	Diatoms	27	9
Feldspar	<1	<1	Radiolarians	2	1
Heavy minerals	2	4	Sponge spicules	1	<1
Clay	41	61	Silicoflagellates	<<1	-
Volcanic glass	3	2			

19-472 cm: Pelagic clay, grayish olive (10Y 4/2); pyrite in patches up to 6 mm sparsely scattered throughout;zone of higher diatom content between 300-360 cm; moderately disturbed between 277-290 cm; slightly disturbed between 308-320 cm due to presence of a piece of plastic core liner imbedded in the sediment; sharp, irregular contact.

smear slides:	185 cm	(zone) 305 cm	455 cm
Quartz	18	19	18
Feldspar	1	<1	<1
Heavy minerals	1	2	2
Clay	50	35	57
Volcanic glass	2	2	1
Glauconite	-	<1	<<1
Micro-Mn nodules	3	1	1
Diatoms	23	40	17
Radiolarians	1	1	3
Sponge spicules	1	<1	1
Silicoflagellates	<<1	-	<<1

472-520 cm: Diatomaceous mud, pale olive (10Y 6/2); pyrite in patches up to 3 mm sparsely scattered throughout; slightly bioturbated between 472-487 cm; gradational contact.

smear slide:	516 cm		
Quartz	20	Micro-Mn nodules	1
Feldspar	<1	Diatoms	30
Heavy minerals	1	Radiolarians	1
Clay	46	Sponge spicules	<1
Volcanic glass	1	Silicoflagellates	<<1

520-575 cm: Muddy, diatomaceous ooze, grayish olive (10Y 4/2); pyrite in patches up to 3 mm sparsely scattered between 551-574 cm; gradational contact.

smear slide:	567 cm		
Quartz	15	Micro-Mn nodules	3
Feldspar	<1	Diatoms	54
Heavy minerals	2	Radiolarians	1
Clay	24	Sponge spicules	<1
Volcanic glass	1	Silicoflagellates	<<1

575-749 cm: Diatomaceous mud, grayish olive (10Y 4/2); pyrite in patches up to 3 mm sparsely scattered throughout; diatom content decreases with depth between 700-749 cm; sharp, irregular contact.

smear slides:	604 cm	693 cm	744 cm
Quartz	25	25	19
Feldspar	<1	<1	1
Mica	<1	-	<<1
Heavy minerals	2	1	1
Clay	30	37	62
Volcanic glass	1	<1	<1
Micro-Mn nodules	1	1	<1
Diatoms	40	35	17
Radiolarians	1	1	<1
Sponge spicules	<1	<1	<1
Silicoflagellates	<<1	<1	<<1

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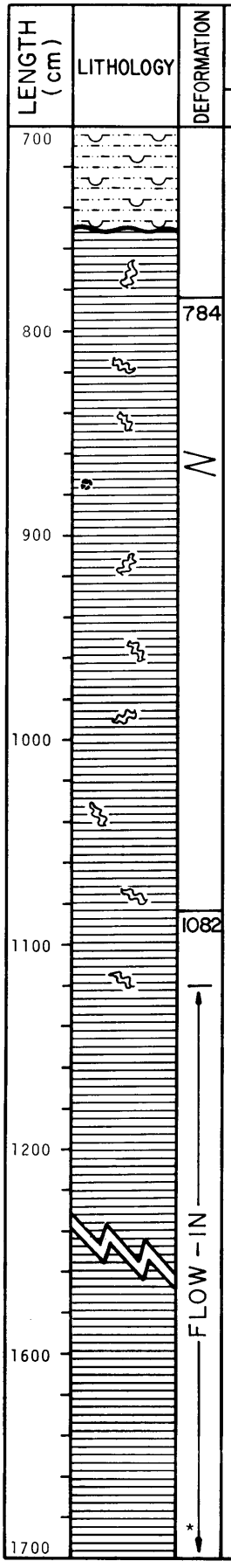
Logged by: Graves, Kaharoeddin, Harwood, Humphreys

ISLAS ORCADAS PC 1678-116



LATITUDE: 44°59.9′ S WATER DEPTH: 5044 M, 2758 FM

LONGITUDE: 32°06.5′ W CORE LENGTH: 1700 CM

LITHOLOGIC DESCRIPTION

749-1700 cm: Pelagic clay, pale olive (10Y 6/2), gradationally changing to light olive gray (5Y 5/2) between 850-918 cm, 956-978 cm, 1020-1040 cm, and 1080-1092 cm; pyrite in patches up to 3 mm sparsely scattered between 810-881 cm; diatom content increases with depth between 810-1120 cm; zones of higher silt content between 850-918 cm, 956-978 cm, and 1020-1040 cm; 10 mm sedimentary clast between 874-875 cm, composed of clay, moderate olive brown (5Y 4/4), soft; slightly bioturbated between 750-850 cm and 910-1120 cm; moderately disturbed between 860-871 cm; gradational change to flow-in at 1120 cm; flow-in between 1120-1700 cm.

smear slides:	774 cm	831 cm	(zone) 885 cm	(zone) 975 cm	1046 cm
Quartz	16	9	36	28	15
Feldspar	<1	<1	<1	<1	<1
Mica	<1	-	-	-	-
Heavy minerals	1	<1	2	1	<1
Clay	66	80	50	47	55
Volcanic glass	1	1	2	2	1
Glauconite	-	-	-	<<1	-
Micro-Mn nodules	<1	<<1	-	-	-
Carbonate unspecified	-	3	<1	<1	<1
Diatoms	15	6	8	18	28
Radiolarians	1	1	2	3	1
Sponge spicules	<1	<<1	-	1	<1
Silicoflagellates	-	<<1	<<1	<1	<<1

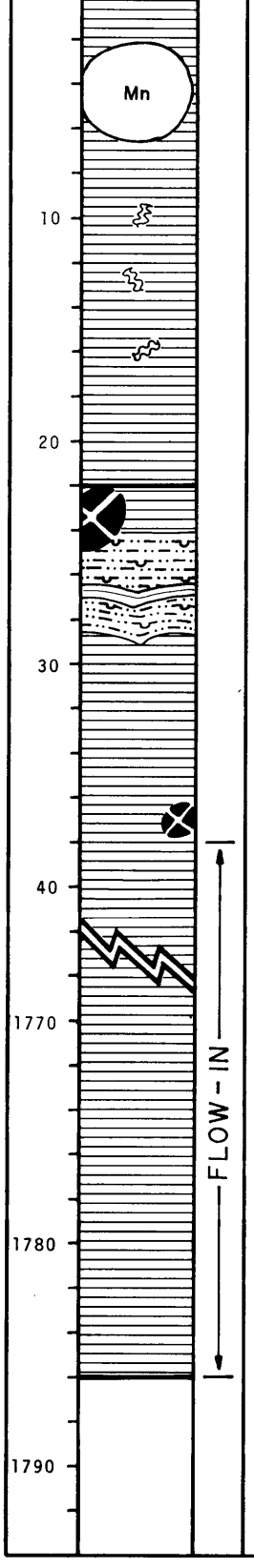
CORE CUTTER AND CATCHER AND SEDIMENT BETWEEN 1690-1700 cm (in one bag; 540 grams): sediment is the same as that of overlying unit; flow-in.

Bottom topography: gently sloping; abyssal plain of the eastern Argentine Basin.

*NOTE: Sediment between 481-485 cm and 1690-1700 cm is bagged.

Logged by: Graves, Kaharoeddin, Harwood, Humphreys

ISLAS ORCADAS PC 1678-117



LATITUDE: 44°01.2′ S
LONGITUDE: 33°05.3′ W
WATER DEPTH: 5201 M, 2844 FM
CORE LENGTH: 1786 CM

LITHOLOGIC DESCRIPTION

0-22 cm: Pelagic clay, yellowish gray (5Y 7/2); 40 mm manganese nodule between 2-7 cm, with moderately decomposed outer layer; laminated and moderately bioturbated between 9-17 cm; sharp contact.

smear slide:	18 cm
Quartz	30
Feldspar	1
Mica	<1
Heavy minerals	5
Clay	38
Volcanic glass	3
Glauconite	<1
Diatoms	20
Radiolarians	2
Sponge spicules	1
Silicoflagellates	<1

22-1786 cm: Pelagic clay, light olive gray (5Y 5/2); layers of diatomaceous mud between 24-26.5 cm and 27-29 cm, light olive gray (5Y 6/1), with chevron structures at the middle of their bottom contacts, (effect of the flow-in at the bottom part of the core); sedimentary clasts between 22-25 cm (30 mm) and 36-38 cm (15 mm), composed of clay, light olive brown (5Y 5/6), moderately indurated; flow-in between 38-1786 cm. NOTE: Flow-in between 38-101 cm composed of pelagic clay, light olive gray (5Y 5/2), with peppery texture due to presence of volcanic ash; vertical striation between 38-80 cm is not well-defined. Flow-in between 101-1786 cm comprised of two lithologies; muddy, diatomaceous ooze, dusky yellow (5Y 6/4), surrounded by pelagic clay, light olive gray (5Y 5/2).

smear slides:	(layer) 27 cm	32 cm
Quartz	27	19
Feldspar	1	1
Mica	<1	<<1
Heavy minerals	1	2
Clay	20	50
Volcanic glass	2	2
Glauconite	<1	-
Micro-Mn nodules	2	2
Diatoms	40	23
Radiolarians	5	1
Sponge spicules	2	<1
Silicoflagellates	<1	<1

CORE CUTTER AND CATCHER (158 grams): predominantly pelagic clay, light olive gray (5Y 5/2), mixed with muddy, diatomaceous ooze, dusky yellow (5Y 6/4); flow-in.

Bottom topography: gently sloping; abyssal plain of the eastern Argentine Basin.

Logged by: Kaharoeddin, Graves

ISLAS ORCADAS PC 1678-120

LENGTH (cm) | LITHOLOGY | DEFORMATION

LATITUDE: 38°10.0′ S
LONGITUDE: 46°03.6′ W
WATER DEPTH: 5024 M, 2747 FM
CORE LENGTH: ~143 CM

LITHOLOGIC DESCRIPTION

NOTE: This core was returned, unopened, to the Republic of Argentina. The length of its core liner, from end cap to end cap, is recorded as 143 cm. Prior to shipment, the lower end cap was removed, and a small (6.1 grams) sample of core sediment was taken from the base of the sediment column. The lithology of this bag sample is: Pelagic clay, olive gray (5Y 4/1).

smear slide:	~143 cm
Quartz	36
Feldspar	<<1
Mica	1
Heavy minerals	3
Clay	50
Volcanic glass	2
Glauconite	<<1
Diatoms	8
Sponge spicules	<1

Bottom topography: flat, on the abyssal plain of the Argentine Basin.

Logged by: Kaharoeddin

ISLAS ORCADAS CRUISE 1678

DESCRIPTIONS OF TRIGGER CORES AND TRIGGER CORE BAG SAMPLES

TC 1678-19

Latitude: 50°11.1' S
Longitude: 46°53.0' W
Water Depth: 2725 m
Core Length: 31 cm

0-18 cm: Foraminiferal ooze, yellowish gray (5Y 8/1); diatom content increases with depth; glauconite content increases with depth between 11-18 cm; layer of diatomaceous, foraminiferal ooze, yellowish gray (5Y 7/2), between 13-16 cm; layer of glauconitic, calcareous, diatomaceous ooze, light olive gray (5Y 5/2), between 16-18 cm; 0.1 cm lamina of foraminiferal-diatomaceous ooze, yellowish gray (5Y 8/1), between 17-18 cm; 0.4 cm lamina of radiolarian, calcareous-diatomaceous ooze, light olive brown (5Y 5/6), between 15-16 cm; moderately disturbed between 0-9 cm; sharp contact.

18-31 cm: Glauconitic, diatomaceous sand, olive gray (5Y 4/1), gradationally changing to moderate olive brown (5Y 4/4) at 24 cm, with color change corresponding to an increase in diatom content and a decrease in glauconite content.

smear slides:	3 cm	(layer) 14 cm	21 cm	27 cm
Quartz	10	12	37	34
Feldspar	<<1	<<1	<1	<1
Heavy minerals	<1	2	2	2
Clay	<1	-	2	2
Volcanic glass	2	2	2	2
Glauconite	3	7	24	12
Carbonate unspecified	3	3	-	-
Foraminifera	60	46	-	-
Calcareous nannos	7	2	-	-
Diatoms	10	17	20	38
Radiolarians	5	8	13	10
Sponge spicules	<1	1	<1	<1
Silicoflagellates	<<1	<<1	<<1	<<1

TC 1678-20

Latitude: 50°17.0' S
Longitude: 46°40.1' W
Water Depth: 2498 m
Core Length: 7 cm

0-7 cm: Diatomaceous, foraminiferal ooze, yellowish gray (5Y 8/1); glauconite sparsely scattered throughout; very fine pebbles sparsely scattered throughout.

smear slide:	4 cm
Quartz	4
Heavy minerals	<1
Volcanic glass	<1
Glauconite	5
Carbonate unspecified	8
Foraminifera	44
Calcareous nannos	8
Diatoms	27
Radiolarians	4
Sponge spicules	<1
Silicoflagellates	<1

TC 1678-21

Latitude: 50°21.2' S
Longitude: 46°31.9' W
Water Depth: 2262 m
Core Length: 41 cm

0-22 cm: Diatomaceous-foraminiferal ooze, light olive gray (5Y 6/1); glauconite sparsely scattered throughout; zone of lower diatom content between 0-12 cm; gradational contact.

22-41 cm: Glauconitic, diatomaceous sand, olive gray (5Y 3/2); 8 mm subangular pebble between 28-29 cm; highly disturbed (washed) between 33-41 cm.

smear slides:	13 cm	27 cm
Quartz	5	30
Heavy minerals	<1	1
Volcanic glass	<1	1
Glauconite	1	26
Carbonate unspecified	2	-
Foraminifera	42	-
Calcareous nannos	1	-
Diatoms	41	28
Radiolarians	7	14
Sponge spicules	<1	<1
Silicoflagellates	1	<1

TC 1678-28

Latitude: 51°14.2' S
Longitude: 45°43.4' W
Water Depth: 2557 m
Core Length: 10 cm

0-10 cm: Diatomaceous, foraminiferal ooze, yellowish gray (5Y 7/2); highly disturbed between 0-10 cm.

smear slide:	4 cm
Quartz	8
Feldspar	<1
Mica	<1
Clay	2
Volcanic glass	3
Glauconite	6
Carbonate unspecified	7
Foraminifera	36
Calcareous nannos	10
Diatoms	25
Radiolarians	3
Sponge spicules	<1

TC 1678-29

Latitude: 51°00.3' S
Longitude: 45°41.9' W
Water Depth: 2182 m
Core Length: 29 cm

0-7 cm: Glauconitic, diatomaceous, foraminiferal ooze, yellowish gray (5Y 8/1); gradational contact.

7-27 cm: Glauconitic, diatomaceous sand, light olive gray (5Y 5/2), gradationally changing to moderate olive brown (5Y 4/4) at 16 cm; diatom and foraminifera content decreases with depth; lens of diatomaceous, foraminiferal ooze between 9-10 cm; fine pebbles common between 25-27 cm; very fine pebbles sparsely scattered throughout; sharp contact.

27-29 cm: Glauconitic, diatomaceous, foraminiferal ooze, yellowish gray (5Y 8/1). NOTE: This unit is identical to that at the top of the core (0-7 cm), possibly due to a multiple entry of the corer.

smear slides:	4 cm	23 cm
Quartz	7	48
Feldspar	1	1
Mica	-	<<1
Heavy minerals	1	2
Clay	1	4
Volcanic glass	-	1
Glauconite	11	22
Carbonate unspecified	5	-
Foraminifera	37	-
Calcareous nannos	15	-
Diatoms	16	16
Radiolarians	6	6
Sponge spicules	<1	<1
Silicoflagellates	-	<<1

TC 1678-30

Latitude: 50°56.6' S
Longitude: 45°41.6' W
Water Depth: 2012 m
Core Length: Bag

Bag sample (150 grams): Diatomaceous, foraminiferal ooze (smear slide A), yellowish gray (5Y 7/2), mixed with foraminiferal-diatomaceous mud (smear slide B), light olive gray (5Y 5/2); pebbles up to 8 mm sparsely scattered. NOTE: Bag sample represents total sediment recovery by the trigger core. According to the deck-log, sediment fell onto deck of ship during extrusion of the core liner. This sediment was bagged.

smear slides:	A	B
Quartz	15	26
Feldspar	<1	<1
Heavy minerals	3	2
Clay	<1	11
Volcanic glass	1	1
Glauconite	2	6
Carbonate unspecified	4	6
Foraminifera	47	18
Calcareous nannos	5	<<1
Diatoms	15	20
Radiolarians	5	7
Sponge spicules	3	3
Silicoflagellates	<1	<<1

TC 1678-31

Latitude: 49°53.7' S
Longitude: 46°00.6' W
Water Depth: 3091 m
Core Length: 52 cm

0-9 cm: Diatomaceous, foraminiferal ooze, yellowish gray (5Y 7/2); glauconite and sand content increases with depth; slightly washed along the side; sharp contact, concave downward.

9-40 cm: Glauconitic, sandy, siliceous ooze, light olive gray (5Y 5/2), gradationally changing to moderate olive brown (5Y 4/4) at 24 cm; zone of higher clay content between 24-33 cm; zone of higher diatom content between 24-25 cm and 27-29 cm; zone of higher radiolarian content between 32-40 cm; slightly washed along the side; sharp contact.

40-52 cm: Sandy, diatomaceous, radiolarian ooze, light olive brown (5Y 5/6); 10 mm sedimentary clast between 48-49 cm, composed of glauconite and abundant volcanic ash, light olive brown (5Y 5/6); 22 mm angular pebble between 44-47 cm; subrounded pebbles between 41-42 cm (7 mm) and 47-49 cm (11 mm); highly disturbed between 41-47 cm.

smear slides:	3 cm	16 cm	36 cm	49 cm
Quartz	4	31	26	28
Feldspar	-	<1	<1	1
Heavy minerals	1	<1	2	2
Clay	4	11	7	4
Volcanic glass	-	2	-	<1
Glauconite	3	12	14	10
Carbonate unspecified	8	-	-	-
Foraminifera	58	<1	-	-
Calcareous nannos	<<1	-	-	-
Diatoms	16	21	23	16
Radiolarians	6	23	28	37
Sponge spicules	<<1	<1	<1	2
Silicoflagellates	<<1	<<1	<<1	<<1

TC 1678-32

Latitude: 50°08.4' S
Longitude: 46°00.1' W
Water Depth: 2771 m
Core Length: 31 cm

0-8 cm: Diatomaceous, foraminiferal ooze, yellowish gray (5Y 7/2); gradational contact.

8-31 cm: Glauconitic, diatomaceous sand, grayish olive (10Y 4/2), abruptly changing to moderate olive brown (5Y 4/4) at 18 cm; 4 mm and 7 mm sedimentary clasts between 10-11 cm, composed of diatomaceous ooze; 20 mm sedimentary clast between 14-17 cm, composed of sandy, diatomaceous ooze; angular pebbles between 9-10 cm (7 mm) and 11-12 cm (6 mm); fine to very fine pebbles common between 18-31 cm; moderately disturbed (washed) between 20-31 cm. NOTE: Smear slide at 12 cm is slightly biased toward the fine fraction.

smear slides:	3 cm	12 cm
Quartz	7	33
Feldspar	<1	1
Mica	-	<<1
Heavy minerals	1	2
Clay	1	1
Volcanic glass	<1	<1
Glauconite	4	13
Carbonate unspecified	7	3
Foraminfera	39	2
Calcareous nannos	5	1
Diatoms	31	35
Radiolarians	5	9
Sponge spicules	<1	<1
Silicoflagellates	<<1	<1

TC 1678-33

Latitude: 50°13.9' S
Longitude: 45°59.9' W
Water Depth: 2465 m
Core Length: 41 cm

0-16 cm: Foraminiferal-diatomaceous ooze, yellowish gray (5Y 8/1); foraminiferal content decreases with depth, glauconite and sand content increases with depth; glauconite abundant between 9-16 cm; 7 cm layer of sandy, diatomaceous ooze, light olive gray (5Y 5/2), between 9-16 cm; gradational contact.

16-41 cm: Glauconitic, diatomaceous sand, olive gray (5Y 3/2); moderately disturbed between 34-41 cm.

CORE CATCHER (22.6 grams): sediment is the same as that of overlying unit.

smear slides:	3 cm	(layer) 15 cm	30 cm
Quartz	4	23	39
Feldspar	-	<1	<1
Heavy minerals	<1	2	1
Clay	1	4	3
Volcanic glass	<1	1	-
Glauconite	1	9	12
Carbonate unspecified	4	5	-
Foraminifera	37	2	-
Calcareous nannos	6	<<1	-
Diatoms	39	46	30
Radiolarians	7	8	14
Sponge spicules	1	<1	1
Silicoflagellates	<1	<<1	<<1

TC 1678-34

Latitude: 50°09.9' S
Longitude: 45°54.0' W
Water Depth: 2769 m
Core Length: 21 cm

0-6 cm: Diatomaceous, foraminiferal ooze, yellowish gray (5Y 8/1); sharp, irregular contact.

6-17 cm: Glauconitic, diatomaceous sand, moderate olive brown (5Y 4/4); angular pebbles between 11-12 cm (8 mm) and 12-13 cm (10 mm); flat, elongate pebbles between 16-17 cm (9 mm and 20 mm); very fine pebbles common throughout; sharp, irregular contact. NOTE: Smear slide at 8 cm biased toward the fine fraction.

17-21 cm: Diatomaceous, sandy mud, light olive brown (5Y 5/6); 9 mm subangular pebble between 20-21 cm.

CORE CUTTER AND CATCHER (46.3 grams): sediment is the same as that of overlying unit.

smear slides:	2 cm	8 cm	21 cm
Quartz	2	39	39
Feldspar	-	-	<<1
Heavy minerals	<1	2	2
Clay	4	8	21
Volcanic glass	<<1	<1	1
Rock fragments	<<1	-	-
Glauconite	1	10	4
Carbonate unspecifed	4	<1	-
Foraminifera	41	<1	-
Calcareous nannos	15	<<1	-
Diatoms	29	34	29
Radiolarians	3	6	3
Sponge spicules	1	<1	1
Silicoflagellates	<1	1	<1

TC 1678-35

Latitude: 50°15.0' S
Longitude: 45°22.5' W
Water Depth: 2429 m
Core Length: 36 cm

0-18 cm: Foraminiferal, diatomaceous ooze, yellowish gray (5Y 8/1); layer of glauconitic, sandy, diatomaceous ooze, light olive gray (5Y 5/2), between 13-18 cm; gradational contact. NOTE: Smear slide at 15 cm is slightly biased toward the fine fraction.

18-36 cm: Glauconitic, diatomaceous sand, olive gray (5Y 3/2); 9 mm subangular rock fragment between 14-15 cm; rock fragments up to 4 mm sparsely scattered throughout; moderately disturbed between 24-28 cm; highly disturbed between 28-36 cm.

smear slides:	10 cm	(layer) 15 cm	23 cm
Quartz	2	20	35
Feldspar	<1	<1	<<1
Mica	-	-	<<1
Heavy minerals	<1	<1	1
Clay	3	8	7
Volcanic glass	1	-	1
Glauconite	1	9	16
Carbonate unspecified	10	4	-
Foraminifera	20	3	-
Diatoms	59	52	36
Radiolarians	3	4	4
Sponge spicules	<1	<1	<<1
Silicoflagellates	1	<1	<<1

TC 1678-52

Latitude: 50°37.4' S
Longitude: 39°43.0' W
Water Depth: 3936 m
Core Length: 7 cm

0-7 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2).

Bag sample (61.5 grams) consisting of basal sediment which fell out of core liner during extrusion aboard ship: sediment is the same as that of overlying unit.

smear slide:	4 cm
Quartz	20
Feldspar	<<1
Heavy minerals	<<1
Clay	12
Volcanic glass	<<1
Diatoms	67
Radiolarians	<1
Sponge spicules	1

TC 1678-55

Latitude: 51°45.4' S
Longitude: 34°01.5' W
Water Depth: 2533 m
Core Length: 9 cm

0-9 cm: Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); very fine pebbles abundant throughout; slightly washed along the side. NOTE: Smear slide is biased toward the fine fraction.

CORE CATCHER (19 grams): sediment is the same as that of overlying unit.

smear slide:	5 cm
Quartz	6
Feldspar	<1
Heavy minerals	<1
Clay	2
Volcanic glass	1
Glauconite	<1
Carbonate unspecified	<<1
Diatoms	88
Radiolarians	3
Sponge spicules	<<1
Silicoflagellates	<<1

TC 1678-56

Latitude: 51°50.2' S
Longitude: 33°54.4' W
Water Depth: 2374 m
Core Length: 13 cm

0-6 cm: Sandy, diatomaceous ooze, light olive gray (5Y 6/1); rounded pebbles between 2-3 cm (9 mm) and 4-6 cm (18 mm); very fine pebbles abundant between 0-4 cm; moderately disturbed (washed) throughout; sharp contact.

6-13 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); 0.8 cm lamina of diatomaceous ooze, grayish yellow (5Y 8/4), between 6-7 cm; moderately disturbed (washed) throughout.

smear slides:	3 cm	8 cm
Quartz	38	4
Feldspar	<<1	<1
Heavy minerals	1	<<1
Clay	<<1	<1
Volcanic glass	3	<1
Glauconite	<1	<1
Carbonate unspecified	4	3
Foraminifera	<1	<1
Diatoms	51	91
Radiolarians	3	2
Sponge spicules	<<1	<<1
Silicoflagellates	<<1	<<1

TC 1678-57

Latitude: 51°53.2' S
Longitude: 33°48.4' W
Water Depth: 2185 m
Core Length: 23 cm

0-23 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); moderately disturbed (washed) throughout.

CORE CATCHER (33.6 grams): sediment is the same as that of overlying unit.

smear slide:	15 cm
Quartz	1
Feldspar	<<1
Clay	<1
Volcanic glass	<<1
Glauconite	<<1
Carbonate unspecified	5
Foraminifera	1
Diatoms	91
Radiolarians	1
Sponge spicules	<<1
Silicoflagellates	1

TC 1678-63

Latitude: 54°52.4' S
Longitude: 25°00.3' W
Water Depth: 4389 m
Core Length: 35 cm

0-19 cm: Ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2), abruptly changing at 14 cm to olive gray (5Y 4/1); slightly stained with manganese oxides between 4-8 cm; 14 mm pumice between 6-8 cm; moderately bioturbated; sharp contact.

19-35 cm: Diatomaceous ooze, light olive gray (5Y 5/2); 1 cm layer of diatom "cotton", grayish yellow (5Y 8/4), between 32-33 cm; slightly bioturbated.

CORE CATCHER (16.7 grams): sediment is the same as that of overlying unit.

smear slides:	9 cm	34 cm
Quartz	13	4
Feldspar	1	<< 1
Heavy minerals	1	-
Clay	<1	3
Volcanic glass	15	3
Diatoms	62	86
Radiolarians	8	3
Silicoflagellates	<1	1

TC 1678-64

Latitude: 54°00.5' S
Longitude: 24°11.7' W
Water Depth: 4515 m
Core Length: 16 cm

0-16 cm: Diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash sparsely scattered throughout; fine pebbles common between 0-3 cm; moderately bioturbated throughout; macrofossil (tube) between 0-3 cm, 2 mm in diameter, vertically oriented, and most closely resembling a tube of the polychaete family Onuphidae (Meredith Jones, personal communication).

smear slides:	3 cm	13 cm
Quartz	7	15
Feldspar	<<1	<1
Heavy minerals	<1	<1
Clay	1	7
Volcanic glass	3	2
Diatoms	88	75
Radiolarians	1	1
Sponge spicules	<<1	<<1
Silicoflagellates	<<1	<<1

TC 1678-65

Latitude: 53°05.1' S
Longitude: 22°57.3' W
Water Depth: 4331 m
Core Length: 29 cm

0-29 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), gradationally changing at 7 cm to light olive gray (5Y 5/2); zone of higher clay content between 7-29 cm; discontinuous stringers of diatom "cotton", grayish yellow (5Y 8/4), common between 3-12 cm; fine pebbles sparsely scattered throughout.

CORE CATCHER (25.6 grams): sediment is the same as that of overlying unit.

smear slides:	5 cm	(zone) 26 cm
Quartz	4	12
Feldspar	1	<1
Heavy minerals	<<1	<1
Clay	<1	14
Volcanic glass	2	4
Diatoms	92	69
Radiolarians	1	1
Silicoflagellates	< 1	<<1

TC 1678-66

Latitude: 51°59.6' S
Longitude: 21°42.1' W
Water Depth: 4422 m
Core Length: 32 cm

0-32 cm: Diatomaceous ooze, light olive gray (5Y 5/2), changing abruptly to yellowish gray (5Y 7/2) at 16 cm; volcanic ash is sparsely scattered throughout, and increases with depth between 16-32 cm; 1 cm lamina with higher diatom content, yellowish gray (5Y 7/2), between 13-14 cm; 0.3 cm lamina between 30-31 cm composed of volcanic ash; 19 mm pebble encrusted with manganese oxides between 0-2 cm; 6 mm pebble between 15-16 cm; moderately disturbed between 20-27 cm; moderately bioturbated throughout.

CORE CUTTER AND CATCHER (72.9 grams): sediment is the same as that of overlying unit.

smear slides:	8 cm	(lamina) 13 cm	23 cm
Quartz	9	3	15
Feldspar	<<1	<<1	<1
Heavy minerals	<1	<1	<1
Clay	4	4	7
Volcanic glass	2	1	1
Diatoms	84	90	77
Radiolarians	1	2	<1
Sponge spicules	-	<<1	<<1
Silicoflagellates	<<1	<<1	<<1

TC 1678-67

Latitude: 51°26.4' S
Longitude: 22°53.4' W
Water Depth: 4588 m
Core Length: 33 cm

0-33 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), changing abruptly to light olive gray (5Y 5/2) between 3-8 cm; three medium pebbles between 6-7 cm; very fine pebbles sparsely scattered throughout.

CORE CATCHER (30.5 grams): sediment is the same as that of overlying unit.

smear slide:	25 cm
Quartz	12
Feldspar	<<1
Mica	<1
Heavy minerals	<1
Clay	4
Volcanic glass	1
Diatoms	81
Radiolarians	2
Sponge spicules	<<1
Silicoflagellates	<<1

TC 1678-68

Latitude: 51°04.3' S
Longitude: 20°38.8' W
Water Depth: 4422 m
Core Length: 27 cm

0-27 cm: Diatomaceous ooze, light olive gray (5Y 5/2); discontinuous stringers of diatom "cotton", yellowish gray (5Y 7/2), abundant between 15-21 cm, common between 3-10 cm; 12 mm subangular pebble between 0-2 cm; moderately disturbed between 0-12 cm and 23-27 cm; slightly washed along the side between 12-23 cm.

CORE CATCHER (20.3 grams): sediment is the same as that of overlying unit.

smear slide:	10 cm
Quartz	6
Feldspar	1
Mica	<<1
Clay	10
Volcanic glass	3
Diatoms	77
Radiolarians	3
Sponge spicules	<1
Silicoflagellates	<1

TC 1678-70

Latitude: 49°59.8' S
Longitude: 19°25.5' W
Water Depth: 4214 m
Core Length: 24 cm

0-24 cm: Diatomaceous ooze, with abrupt changes in color as follows: light olive gray (5Y 5/2) between 0-5 cm, dark yellowish brown (10 YR 4/2) between 5-14 cm and 18-22 cm, pale brown (5YR 5/2) between 14-16 cm, moderate brown (5YR 3/4) between 16-18 cm, and yellowish gray (5Y 7/2) between 22-24 cm; highly stained with manganese oxides between 16-18 cm, moderately stained between 14-16 cm, and slightly stained between 5-14 cm; micro-manganese nodules sparsely scattered throughout.

CORE CATCHER (1 gram): sediment is the same as that of overlying unit.

smear slides:	2 cm	19 cm	23 cm
Quartz	8	4	3
Feldspar	<1	1	<1
Heavy minerals	<1	<<1	<<1
Clay	6	10	5
Volcanic glass	2	1	1
Micro-Mn nodules	-	<1	-
Diatoms	82	82	90
Radiolarians	2	2	1
Sponge spicules	<<1	<<1	<<1
Silicoflagellates	<1	<1	<1

TC 1678-73

Latitude: 48°24.6' S
Longitude: 17°55.1' W
Water Depth: 3877 m
Core Length: 27 cm

0-27 cm: Diatomaceous ooze, light olive gray (5Y 6/1); 15 mm subrounded pebble between 8-10 cm.

CORE CATCHER (21.6 grams): sediment is the same as that of overlying unit.

smear slide:	12 cm
Quartz	11
Feldspar	2
Heavy minerals	<1
Clay	3
Volcanic glass	<1
Glauconite	<<1
Diatoms	83
Radiolarians	1
Silicoflagellates	<<1

TC 1678-76

Latitude: 47°10.1' S
Longitude: 16°17.6' W
Water Depth: 3312 m
Core Length: 25 cm

0-25 cm: Foraminiferal ooze, yellowish gray (5Y 7/2); foraminiferal content decreases with depth, and diatom content increases with depth; 30 mm manganese nodule between 5-8 cm; two angular pebbles (3 mm and 5 mm) between 4-6 cm.

CORE CUTTER (18.9 grams): sediment is the same as that of overlying unit.

smear slides:	3 cm	20 cm
Quartz	1	1
Feldspar	-	<<1
Heavy minerals	-	<1
Clay	<<1	2
Volcanic glass	-	<1
Carbonate unspecified	10	14
Foraminifera	78	55
Calcareous nannos	5	8
Diatoms	5	18
Radiolarians	1	2
Sponge spicules	<<1	-
Silicoflagellates	<1	<1

TC 1678-80

Latitude: 47°57.0' S
Longitude: 13°01.4' W
Water Depth: 3102 m
Core Length: 30 cm

0-19 cm: Diatomaceous, foraminiferal ooze, yellowish gray (5Y 8/1); moderately bioturbated between 11-19 cm; sharp, irregular contact.

19-30 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); foraminifera abundant between 19-25 cm; 4 mm subrounded pebble between 19-21 cm; moderately disturbed (washed).

CORE CATCHER (30.8 grams): sediment is the same as that of overlying unit.

smear slides:	3 cm	27 cm
Quartz	2	2
Feldspar	<<1	<1
Heavy minerals	<<1	<<1
Clay	1	1
Volcanic glass	-	<<1
Carbonate unspecified	5	<1
Foraminifera	63	<<1
Calcareous nannos	8	-
Diatoms	16	97
Radiolarians	5	<1
Sponges spicules	<<1	-
Silicoflagellates	<1	<<1

TC 1678-81

Latitude: 48°59.9' S
Longitude: 13°20.2' W
Water Depth: 3464 m
Core Length: 27 cm

0-27 cm: Calcareous, diatomaceous ooze, yellowish gray (5Y 7/2), changing abruptly to light olive gray (5Y 5/2) between 16-20 cm due to staining by manganese oxides. NOTE: The basal 3 cm (24-27 cm) of core sediment are bagged (39.5 grams). There is no indication in the deck-log as to why this sediment required bagging.

CORE CUTTER AND CATCHER (43 grams): sediment is the same as that of overlying unit.

TC 1678-83

Latitude: 50°56.8' S
Longitude: 14°03.4' W
Water Depth: 3742 m
Core Length: 16 cm

0-16 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); unspecified carbonate common throughout; foraminifera common throughout; slightly stained with manganese oxides; moderately disturbed (washed) between 4-7 cm. NOTE: The basal 9 cm (7-16 cm) of core sediment are bagged (24.4 grams), having fallen from the core liner onto the ship's deck during extrusion.

smear slides:	3 cm	7-16 cm (bag)
Quartz	2	1
Feldspar	1	<1
Clay	1	<<1
Volcanic glass	1	<1
Micro-Mn nodules	-	1
Carbonate unspecified	8	9
Foraminifera	7	2
Calcareous nannos	<<1	<<1
Diatoms	78	86
Radiolarians	2	1
Sponge spicules	<<1	-
Silicoflagellates	<1	<1

TC 1678-84

Latitude: 51°57.5' S
Longitude: 14°25.2' W
Water Depth: 3952 m
Core Length: 24 cm

0-24 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); mottled between 17-19 cm; volcanic ash sparsely scattered throughout; 19 mm angular pebble between 2-4 cm; moderately disturbed (washed) between 22-24 cm.

RE CATCHER (48.1 grams): sediment is the same as that of overlying unit.

smear slide:	17 cm
Quartz	1
Feldspar	<1
Heavy minerals	<<1
Clay	<1
Volcanic glass	<1
Diatoms	96
Radiolarians	2
Silicoflagellates	1

TC 1678-87

Latitude: 55°11.9' S
Longitude: 15°50.6' W
Water Depth: 3738 m
Core Length: 27 cm

0-27 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash sparsely scattered throughout; slightly stained with manganese oxides between 4-27 cm; moderately washed along the side between 24-27 cm; slightly washed along the side between 0-24 cm.

CORE CUTTER AND CATCHER (18.4 grams): sediment is the same as that of overlying unit.

smear slides:	2 cm	22 cm
Quartz	2	1
Feldspar	<1	1
Clay	<1	<1
Volcanic glass	2	1
Micro-Mn nodules	-	<<1
Carbonate unspecified	<<1	-
Diatoms	95	95
Radiolarians	1	2
Silicoflagellates	<1	<1

TC 1678-89

Latitude: 57°03.6' S
Longitude: 18°32.4' W
Water Depth: 4285 m
Core Length: 34 cm

0-34 cm: Diatomaceous ooze, yellowish gray (5Y 7/2), changing abruptly to light olive gray (5Y 5/2) at 13 cm; volcanic ash sparsely scattered throughout, becoming more abundant with depth; 3 cm layer of diatom-bearing ash, dusky yellowish brown (10YR 2/2), between 21-24 cm; discontinuous stringers of volcanic ash sparsely scattered between 15-17 cm; scoriae up to 8 mm common between 21-24 cm, sparsely scattered between 24-34 cm; moderately washed along the side between 0-8 cm.

smear slides:	4 cm	(layer) 23 cm	27 cm
Quartz	3	12	3
Feldspar	<1	7	3
Heavy minerals	<1	2	<1
Clay	<<1	-	<1
Volcanic glass	5	72	6
Glauconite	-	1	-
Diatoms	91	6	87
Radiolarians	1	<<1	1
Silicoflagellates	<<1	-	<1

TC 1678-90

Latitude: 57°30.8' S
Longitude: 17°22.7' W
Water Depth: 4545 m
Core Length: 30 cm

0-30 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash common throughout; layer of ash-bearing, diatomaceous ooze, light olive gray (5Y 5/2), between 12-23 cm; 0.7 cm lamina of volcanic ash between 23-24 cm; 9 mm sedimentary clast composed of muddy, diatomaceous ooze, light olive gray (5Y 5/2), between 7-8 cm; angular lapilli between 0-1 cm (7 mm) and 24-25 cm (8 mm); highly disturbed (washed) between 17-30 cm.

CORE CATCHER (3.5 grams): sediment is the same as that of overlying unit.

smear slides:	3 cm	(layer) 17 cm
Quartz	3	20
Feldspar	1	1
Heavy minerals	<<1	1
Clay	<1	3
Volcanic glass	4	21
Diatoms	90	53
Radiolarians	2	1
Sponge spicules	-	<<1
Silicoflagellates	<1	<1

TC 1678-91

Latitude: 58°09.9' S
Longitude: 17°48.5' W
Water Depth: 3954 m
Core Length: 53 cm

0-30 cm: Diatomaceous ooze, light olive gray (5Y 5/2); layer of ash-bearing, diatomaceous ooze, moderate brown (5YR 3/4), between 0-10 cm; laminae of diatomaceous mud, yellowish gray (5Y 7/2), between 17-18 cm (0.8 cm) and 20-21 cm (0.6 cm); scoriae up to 11 mm common between 0-6 cm; volcanic ash sparsely scattered between 10-30 cm; moderately bioturbated between 20-24 cm; gradational contact.

30-53 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); scoriae up to 4 mm sparsely scattered throughout; discontinuous stringers of volcanic ash sparsely scattered throughout.

CORE CUTTER (24.4 grams): sediment is the same as that of overlying unit.

smear slides:	(layer) 9 cm	16 cm	(lamina) 18 cm	47 cm
Quartz	13	11	15	14
Feldspar	3	<1	1	<<1
Heavy minerals	<1	1	<<1	<1
Clay	3	15	43	22
Volcanic glass	25	4	4	7
Foraminifera	<<1	-	<<1	-
Diatoms	53	68	37	57
Radiolarians	3	1	-	-
Sponge spicules	<<1	-	-	<<1
Silicoflagellates	<1	<1	-	-

TC 1678-96

Latitude: 60°27.9' S
Longitude: 21°37.1' W
Water Depth: 4177 m
Core Length: 32 cm

0-32 cm: Diatomaceous ooze, light olive gray (5Y 5/2), changing abruptly to dark yellowish brown (10 YR 4/2) between 1-3 cm, 15-19 cm, 20-22 cm, and 23-25 cm due to staining by manganese oxides; mottled between 5-14 cm.

CORE CATCHER (16.6 grams): sediment is the same as that of overlying unit.

smear slides:	4 cm	11 cm	19 cm	25 cm
Quartz	6	10	9	8
Feldspar	1	1	2	1
Mica	-	-	<<1	-
Heavy minerals	<1	<1	<1	1
Clay	2	1	<1	5
Volcanic glass	4	6	5	12
Glauconite	<<1	-	-	<<1
Carbonate unspecified	-	<1	-	-
Diatoms	84	80	83	71
Radiolarians	2	2	1	2
Sponge spicules	-	-	-	<1
Silicoflagellates	1	<1	<<1	<<1
Ebridians	-	<<1	-	-

TC 1678-98

Latitude: 59°50.3' S
Longitude: 23°25.9' W
Water Depth: 4631 m
Core Length: 38 cm

0-38 cm: Diatomaceous ooze, light olive gray (5Y 5/2) and yellowish gray (5Y 7/2), having "cotton" texture; volcanic ash abundant between 6-8 cm; stringers of volcanic ash between 23-24 cm; slightly disturbed between 0-5 cm.

CORE CATCHER (33.6 grams): sediment is the same as that of overlying unit.

smear slide:	16 cm
Quartz	3
Feldspar	<<1
Heavy minerals	<1
Clay	<1
Volcanic glass	2
Diatoms	95
Radiolarians	<1
Silicoflagellates	<1

TC 1678-103

Latitude: 51°30.5' S
Longitude: 25°11.9' W
Water Depth: 3028 m
Core Length: 21 cm

0-4 cm: Calcareous, diatomaceous ooze, yellowish gray (5Y 7/2); fine pebbles sparsely scattered throughout; gradational contact.

4-13 cm: Sandy, diatomaceous ooze, light olive gray (5Y 5/2); volcanic ash common throughout; zone of higher sand content between 10-13 cm; discontinuous stringer (7 mm thick) of diatom "cotton", yellowish gray (5Y 7/2), between 7-8 cm; 6 mm subrounded pebble between 10-12 cm; very fine pebbles sparsely scattered throughout; sharp contact.

13-21 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash sparsely scattered throughout; very fine pebbles sparsely scattered throughout.

CORE CATCHER (28.7 grams): sediment is the same as that of overlying unit.

smear slides:	1 cm	9 cm	17 cm
Quartz	3	15	11
Feldspar	1	1	1
Mica	-	<<1	-
Heavy minerals	<1	<1	1
Clay	<1	3	1
Volcanic glass	3	3	2
Carbonate unspecified	12	-	-
Foraminifera	16	-	-
Calcareous nannos	<1	-	-
Diatoms	61	75	77
Radiolarians	4	3	7
Sponge spicules	<<1	<<1	<<1
Silicoflagellates	<1	<<1	<<1

TC 1678-104

Latitude: 51°29.5' S
Longitude: 25°27.7' W
Water Depth: 2999 m
Core Length: 19 cm

0-7 cm: Calcareous-diatomaceous ooze, yellowish gray (5Y 8/1); 28 mm angular pebble between 1-5 cm; sharp contact.

7-15 cm: Sandy, diatomaceous ooze, light olive gray (5Y 5/2); 14 mm sedimentary clast between 7-9 cm, composed of foraminiferal, diatomaceous ooze, yellowish gray (5Y 8/1); very fine pebbles sparsely scattered throughout; sharp contact. NOTE: Smear slide at 13 cm is biased toward the fine fraction.

15-19 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash sparsely scattered throughout.

CORE CATCHER (36.7 grams): Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); volcanic ash common; subangular pebbles, 6 mm and 10 mm.

smear slides:	6 cm	13 cm	18 cm	catcher
Quartz	5	8	6	32
Feldspar	<1	<1	<1	<1
Heavy minerals	<1	1	<1	<1
Clay	1	6	3	1
Volcanic glass	4	2	2	1
Glauconite	<<1	-	-	<1
Carbonate unspecified	16	-	-	-
Foraminifera	22	-	-	-
Calcareous nannos	<<1	-	-	-
Diatoms	49	80	85	66
Radiolarians	3	3	4	<1
Sponge spicules	<<1	<<1	<<1	<<1
Silicoflagellates	<<1	<1	<<1	<<1

TC 1678-105

Latitude: 51°31.2' S
Longitude: 25°30.4' W
Water Depth: 3122 m
Core Length: Bag

Bag sample (63.7 grams): Foraminiferal-diatomaceous ooze, yellowish gray (5Y 7/2); 29 mm subangular pebble; very fine to fine pebbles abundant. NOTE: The bagged sediment represents total recovery by the trigger coring attempt. There is no indication in the deck-log as to why sediment required being bagged; presumed to be either from the core cutter and/or catcher.

smear slide:	bag
Quartz	9
Feldspar	<1
Heavy minerals	<1
Clay	2
Volcanic glass	4
Rock fragments	<1
Carbonate unspecified	5
Foraminifera	33
Calcareous nannos	<<1
Diatoms	43
Radiolarians	4
Sponge spicules	<<1
Silicoflagellates	<1

TC 1678-106

Latitude: 51°31.3' S
Longitude: 25°28.0' W
Water Depth: 3091 m
Core Length: 18 cm

0-9 cm: Foraminiferal-diatomaceous ooze, yellowish gray (5Y 7/2); 22 mm sedimentary clast between 3-6 cm, composed of foraminiferal, diatomaceous ooze, yellowish gray (5Y 7/2); 10 mm subangular pebble between 0-1 cm, sharp contact.

9-18 cm: Sandy, diatomaceous ooze, light olive gray (5Y 5/2); moderately stained with manganese oxides between 9-11 cm, slightly stained with manganese oxides between 11-18 cm; 16 mm subangular pebble between 14-17 cm; fine pebbles common throughout. NOTES: Smear slide at 12 cm biased toward the fine fraction. Also, the basal 1 cm (17-18 cm) of core sediment is bagged (32 grams). There is no indication in the deck-log as to why this sediment required bagging.

CORE CATCHER (64.5 grams): sediment is the same as that of overlying unit.

smear slides:	1 cm	12 cm
Quartz	8	13
Feldspar	<1	1
Mica	-	<<1
Heavy minerals	1	2
Clay	1	2
Volcanic glass	3	3
Glauconite	<<1	<<1
Carbonate unspecified	6	-
Foraminifera	36	-
Calcareous nannos	-	<<1
Diatoms	41	74
Radiolarians	4	5
Sponge spicules	<<1	<1
Silicoflagellates	<<1	<<1

TC 1678-107

Latitude: 51°31.3' S
Longitude: 25°25.9' W
Water Depth: 2986 m
Core Length: 17 cm

0-6 cm: Foraminiferal, diatomaceous ooze, yellowish gray (5Y 7/2); gradational contact.

6-17 cm: Diatomaceous ooze, light olive gray (5Y 5/2), mottled with light olive gray (5Y 6/1); volcanic ash sparsely scattered throughout; pebbles (20 mm and 12 mm) between 15-17 cm.

smear slides:	3 cm	12 cm
Quartz	4	7
Feldspar	1	1
Heavy minerals	<1	2
Clay	<<1	4
Volcanic glass	2	3
Glauconite	-	<<1
Carbonate unspecified	14	6
Foraminifera	22	7
Diatoms	55	65
Radiolarians	2	5
Sponge spicules	-	<<1
Silicoflagellates	<<1	<<1

TC 1678-108

Latitude: 51°31.6' S
Longitude: 25°43.5' W
Water Depth: 2772 m
Core Length: 13 cm

0-13 cm: Laminated diatomaceous ooze, yellowish gray (5Y 7/2); variations in the color of the laminae are due to variability of diatom content; volcanic ash common between 10-13 cm, sparsely scattered between 0-10 cm; 4 cm layer of calcareous, diatomaceous ooze, yellowish gray (5Y 7/2), between 0-4 cm.

CORE CATCHER (8.8 grams): Diatomaceous ooze, yellowish gray (5Y 7/2); 10 mm sedimentary clast composed of foraminiferal, diatomaceous ooze, yellowish gray (5Y 8/1); 3 mm subrounded pebble.

smear slides:	(layer) 3 cm	12 cm	catcher
Quartz	4	10	9
Feldspar	<<1	<1	2
Heavy minerals	<1	<1	<1
Clay	4	3	2
Volcanic glass	2	5	2
Glauconite	<<1	<1	<<1
Carbonate unspecified	15	5	<<1
Foraminifera	20	6	<<1
Diatoms	52	68	85
Radiolarians	3	3	<1
Sponge spicules	<<1	<<1	-
Silicoflagellates	<1	<<1	<<1

TC 1678-109

Latitude: 50°46.3' S
Longitude: 26°04.1' W
Water Depth: 2999 m
Core Length: Bag

Bag sample (392.5 grams): Sandy, diatomaceous ooze, yellowish gray (5Y 7/2); 9 mm, 11 mm, and 16 mm pebbles, and very fine to fine pebbles common throughout. NOTE: Deck-log notations indicate that this core was taken without a core liner having been placed in the core barrel. The approximately 33 cm of core sediment were extruded from the core barrel aboard ship, and bagged.

smear slide:	bag
Quartz	35
Feldspar	1
Heavy minerals	1
Clay	2
Volcanic glass	4
Glauconite	1
Carbonate unspecified	3
Foraminifera	7
Diatoms	40
Radiolarians	6
Silicoflagellates	<<1

TC 1678-111

Latitude: 48°59.9' S
Longitude: 26°57.6' W
Water Depth: 4331 m
Core Length: 52 cm

0-33 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); highly stained with manganese oxides between 15-20 cm and 26-27 cm, slightly stained with manganese oxides between 5-15 cm; zone of higher mud content between 0-4 cm; slightly bioturbated between 11-20 cm; sharp contact.

33-52 cm: Diatomaceous mud, light olive gray (5Y 5/2).

CORE CATCHER (19.4 grams): Diatomaceous mud, grayish olive (10Y 4/2).

smear slides:	9 cm	42 cm	catcher
Quartz	11	16	17
Feldspar	<1	<1	<1
Mica	-	<<1	-
Heavy minerals	1	2	1
Clay	22	34	44
Volcanic glass	2	2	2
Glauconite	1	1	-
Micro-Mn nodules	1	-	-
Diatoms	58	43	35
Radiolarians	3	2	1
Sponge spicules	1	<1	<1
Silicoflagellates	<1	<1	<1

TC 1678-112

Latitude: 48°09.3' S
Longitude: 27°58.7' W
Water Depth: 4374 m
Core Length: 53 cm

0-53 cm: Diatomaceous mud, light olive gray (5Y 5/2), gradationally changing at 30 cm to olive gray (5Y 3/2); layer of diatomaceous mud, dark yellowish brown (10YR 4/2), between 0-2 cm, highly stained with ferromanganese oxides; staining by ferromanganese oxides in patches up to 1 cm abundant between 2-12 cm; moderately bioturbated between 2-16 cm.

CORE CATCHER (10 grams): sediment is the same as that of overlying unit.

smear slides:	6 cm	34 cm
Quartz	27	30
Feldspar	2	1
Heavy minerals	1	1
Clay	18	21
Volcanic glass	4	3
Glauconite	<1	<1
Diatoms	43	40
Radiolarians	4	3
Sponge spicules	1	1
Silicoflagellates	<<1	<1

TC 1678-114

Latitude: 46°40.9' S
Longitude: 30°07.4' W
Water Depth: 4716 m
Core Length: 51 cm

0-51 cm: Diatomaceous mud, light olive gray (5Y 5/2), slightly stained with manganese oxides between 0-18 cm; 4 mm thick inclined stringer of sand between 26-27 cm; slightly bioturbated between 0-18 cm.

smear slides:	3 cm	28 cm
Quartz	20	17
Feldspar	<1	<1
Mica	-	<1
Heavy minerals	2	2
Clay	30	41
Volcanic glass	3	2
Glauconite	<1	<1
Diatoms	42	37
Radiolarians	3	1
Sponge spicules	<<1	<1
Silicoflagellates	<1	<<1

TC 1678-115

Latitude: 46°00.6' S
Longitude: 31°05.8' W
Water Depth: 5047 m
Core Length: 53 cm

0-21 cm: Pelagic clay, pale yellowish brown (10YR 6/2); diatom content decreases with depth; volcanic ash and rounded sand grains sparsely scattered throughout; inclined stringer (2 mm thick) of fine sand between 8-10 cm; moderately bioturbated between 4-15 cm; sharp contact.

21-53 cm: Pelagic clay, dark yellowish brown (10YR 4/2); diatom content decreases with depth; volcanic ash and quartz sand common between 34-36 cm, sparsely scattered between 21-22 cm and 36-40 cm; moderately bioturbated between 40-45 cm.

CORE CUTTER AND CATCHER (40 grams): sediment is the same as that of overlying unit.

smear slides:	19 cm	46 cm
Quartz	12	18
Feldspar	<<1	<1
Mica	1	<1
Heavy minerals	1	1
Clay	58	53
Volcanic glass	1	2
Micro-Mn nodules	<1	<1
Diatoms	25	25
Radiolarians	1	1
Sponge spicules	1	<1
Silicoflagellates	<1	-

TC 1678-116

Latitude: 44°59.9' S
Longitude: 32°06.5' W
Water Depth: 5044 m
Core Length: 55 cm

0-55 cm: Pelagic clay, light olive gray (5Y 5/2); diatom and silt content vary throughout; patches (up to 6 mm) moderately stained with manganese oxides common between 4-7 cm and 23-29 cm.

CORE CUTTER AND CATCHER (80.1 grams): sediment is the same as that of overlying unit.

smear slides:	2 cm	38 cm
Quartz	20	41
Feldspar	<1	-
Heavy minerals	<1	<<1
Clay	62	36
Volcanic glass	<1	<1
Diatoms	18	23
Radiolarians	-	<1
Sponge spicules	<<1	<1
Silicoflagellates	<<1	-

TC 1678-117

Latitude: 44°01.2' S
Longitude: 33°05.3' W
Water Depth: 5201 m
Core Length: 28 cm

0-28 cm: Diatomaceous mud, pale brown (5YR 5/2); layer of diatomaceous mud, light olive gray (5Y 6/1), between 13-16 cm, slightly inclined, and with a higher silt content; very fine and fine pebbles mixed with coarse sand between 0-3 cm, highly coated with manganese oxides; slightly bioturbated between 10-28 cm.

smear slides:	10 cm	(layer) 14 cm
Quartz	25	39
Feldspar	1	<1
Mica	<1	<1
Heavy minerals	<1	1
Clay	37	24
Volcanic glass	3	3
Glauconite	<1	<1
Micro-Mn nodules	<1	-
Diatoms	32	30
Radiolarians	2	1
Sponge spicules	<1	2
Silicoflagellates	<1	<1

TC 1678-120

Latitude: 38°10.0' S
Longitude: 46°03.6' W
Water Depth: 5024 m
Core Length: 49 cm

0-49 cm: Pelagic clay, varying in color from pale brown (5YR 5/2) between 0-7 cm, to pale yellowish brown (10YR 6/2) between 7-22 cm, to light olive gray (5Y 5/2) between 22-27 cm, and to olive gray (5Y 3/2) between 27-49 cm; 3 mm thick inclined stringer of very fine sand between 42-44 cm; moderately bioturbated between 7-19 cm; slightly disturbed between 46-49 cm.

smear slide:	32 cm
Quartz	30
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	64
Volcanic glass	2
Glauconite	<1
Micro-Mn nodules	<<1
Diatoms	2
Radiolarians	<1
Sponge spicules	<1

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APPENDIX

RESEARCH UPON SEDIMENTS COLLECTED ABOARD ARA ISLAS ORCADAS: A PRELIMINARY BIBLIOGRAPHY

To date (30 JUNE 82), a total of 21,888 samples have been distributed from the more than 2,100 meters of marine sediment cores retrieved from the Southern Ocean aboard the five multidisciplinary cruises of ARA ISLAS ORCADAS (cruises 0775, 1176, 1277, 1578, and 1678). Distributed to 40 investigators representing 21 institutions in 4 countries, these samples have been the subject of investigation for a variety of studies concerned with the micropaleontology, biostratigraphy, paleomagnetic stratigraphy, sedimentology, and geochemistry of sediments in the South Atlantic sector of the Southern Ocean.

Much of the work upon these samples is still in an early phase of laboratory analysis. At the time of preparation of this appendix, approximately twenty-five investigators are actively engaged in research upon ISLAS ORCADAS samples, the results of which have yet to appear in print, and samples are being distributed weekly. However, a considerable number of publications that are based upon the results of analyses already completed have appeared in the scientific literature. These documents are in the form of journal articles, papers published in symposium proceedings, graduate and undergraduate theses and dissertations, core description volumes, abstracts*, and miscellaneous articles such as summary reports of the yearly activities of the curatorial facility where the ISLAS ORCADAS materials are stored. The responsibilities of the curator of the facility include, in addition to the distribution of samples, the maintaining of a file of these publications, and the dissemination of information regarding their availability to potentially interested users.

The purpose of this appendix is to present a preliminary bibliography of research articles and research-related literature, the contents of which involve some aspect of the results of analyses performed upon samples thus far distributed from ISLAS ORCADAS piston, trigger, and Phleger core sediments. (It is beyond the scope of the bibliography to include reference to published articles which are based upon the results of other aspects of research associated with the multidisciplinary shipboard program, such as seismic profiling, physical oceanography, and marine biology. Many of these articles can be expected to be referenced in the literature cited within the publications appearing in the bibliography.)

Although an effort has been made to provide a complete listing of titles to date, the bibliography is not expected to be complete, since its completeness is dependent upon a number of factors such as: 1) the cooperation of the sample recipient in providing the curator with published results; 2) the success of the curator in tracking down those publications in the literature which are not furnished; 3) the occasional reluctance of a principal investigator to publicize or furnish information concerning project titles until such time that a manuscript has been officially accepted for publication, or, in the case of unpublished student theses and dissertations, until subsequent publication of their results in recognized journals; 4) the probability that some research in progress will have been completed, submitted for publication, and published by the time that this bibliography appears in print, and 5) the assumption that there are certain categories of published articles, such as review articles, which synthesize or incorporate the results of research upon ISLAS ORCADAS sediments, but without specific mention of the cores or the vessel.

Nevertheless, in spite of the probability that this bibliography is incomplete, and the fact, as well, that it is of topical value only (ARA ISLAS ORCADAS), it is appropriate to begin, now, to prepare a listing of available data concerning the sampled sediments as an additional aid to the needs of the researcher. This preliminary bibliography is intended to serve as the nucleus of a continuing effort to maintain it on a regular basis. An eventual goal is the preparation of a listing of specific cores, cross-referenced against the publications in which they are mentioned.

*Abstracts are not included in this bibliography.

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DIVISION OF POLAR PROGRAMS
NATIONAL SCIENCE FOUNDATION

WASHINGTON, D.C. 20550

SPECIMEN AND CORE-SAMPLE DISTRIBUTION POLICY

The Division of Polar Programs supports collection and analysis of polar ice, sediment, and rock cores and of biological specimens. This statement establishes policy and procedures for distributing these materials to investigators for research use.

The State University of New York at Buffalo provides a storage facility and a curator for ice cores. The Florida State University provides a storage facility and a curator for sediment and rock cores. The Smithsonian Oceanographic Sorting Center provides a storage facility, a sorting service, and curators for biological specimens. The Division of Polar Programs funds operation of these facilities.

General provisions

The Foundation's objective is to assure (1) maximum availability of samples to qualified investigators, (2) analysis over a wide range of research disciplines without unnecessary duplication, and (3) prompt publication of results.

To obtain samples, an investigator first contacts the appropriate curator to determine that the needed material is available. The curator sends the investigator a form to be filled out or otherwise indicates the exact procedure to be followed. (For some specific types of samples see further instructions below.) The investigator sends the completed request for samples to the curator. The request must specify type and amount of samples required, purpose of research, and source of funding if funding is needed. The Division of Polar Programs or a designated advisory group authorizes distribution if warranted. Normally, a Division of Polar Programs grant for sample research automatically authorizes access to samples. Samples are not provided to investigators unless funding for the proposed research either is forthcoming or is not needed.

Investigator responsibilities

Investigators are responsible for:

1. Prompt publication of significant results, with acknowledgment of the National Science Foundation as the source of materials.

2. Submittal of annual letter reports to the curator citing publications resulting from the research and enclosing copies of the publications. If the investigator has not published in a particular year, he or she sends the curator a letter describing, very briefly, his progress over the last year.

3. Provision of a copy of the letter noted in item 2, and two copies of all published results, to the appropriate program manager in the Division of Polar Programs—whether or not the investigator has a grant from the Division.

4. Notification to the curator, with a copy to the program manager, of any proposed change from tasks stated in the original request.

5. Return to the curator of the remainders of samples or any residue in good condition, unless otherwise authorized by the curator.

Investigators may not distribute residue samples to other investigators without prior approval. Investigators receiving residue samples become subject to the reporting procedures outlined in this section. The objective of this provision is not to restrict research; on the contrary, the objective is to insure that the best possible use is made of the samples and that the curator is fully informed as to their use and disposition.

The curation facility may charge investigators to recover freight or mailing expenses involved in filling requests. The curator will estimate charges, if required, before processing the request.

Sediment cores

Sediment cores and bottom samples have been taken from numerous locations in the southern ocean using the research ship *Eltanin* (now *Islas Orcadas)* and other ships. Published core logs are available from the curator of the Florida State University facility. Before publication of logs, preliminary logs generally are available.

Piston core material is apportioned as follows:

- 1/4 for permanent reference, to be held in the core facility for future investigation as authorized by the Division of Polar Programs
- 3/4 for research use

Gravity cores, trigger cores, grab samples, dredge

samples, and other samples are apportioned as follows:

— 1/3 for permanent reference, as above
— 2/3 for research use

Ice cores

Glacier ice cores have been taken at several locations in Antarctica and Greenland. Deep cores (to bedrock) were taken at Byrd Station and Camp Century. Several 100-meter and 400-meter cores have been obtained from other ice sheet locations. The curator of the ice core storage facility at the State University of New York at Buffalo keeps a record of core locations. A data bank exists for each core, and annual reports on use of core are available.

Dry Valley Drilling Project cores

Preliminary core descriptions prepared by site geologists have been published in *DVDP Bulletins*, available from the Department of Geology, Northern Illinois University, DeKalb, Illinois 60115. The Dry Valley Drilling Project staff at Northern Illinois University keeps a record of sample requests, indicating investigator and subjects of study, that is available on request. Frozen and unfrozen core samples are kept at the Florida State University facility. Igneous rock core, including basement and massive basalts, is at Northern Illinois University, but may be moved to Florida State.

Distribution is made after joint approval by the project sponsors: the Antarctic Division, Department of Scientific and Industrial Research, Christchurch, New Zealand; the Japan National Institute for Polar Research, Tokyo; and the Division of Polar Programs. To request samples, researchers use a form available from a DVDP coordinator in Japan, New Zealand, or the United States or from the curator at Florida State University. To aid in choosing samples for study, new researchers may examine cores at the Florida State or Northern Illinois University facilities.

Ross Ice Shelf Project marine sediment cores

RISP cores are logged visually in the field, then shipped to the Florida State facility. The logs are available from the curator at Florida State. Researchers wishing to obtain samples should get a request form from the project coordinator or from the curator at Florida State, then apply to the Division of Polar Programs as described earlier. Normally, core will not be available until after publication of the logs. However, investigators wishing to study ephemeral properties may request that the waiting period be waived. The curator keeps a record of sample requests, indicating investigators and subjects of study. The record is available on request.

Biological samples

To obtain samples/specimens from the Smithsonian Oceanographic Sorting Center, contact the Director, who will advise on availability of specimens and provide a request form. All requests are reviewed by an appropriate peer Advisory Committee established by SOSC. The DPP is advised of all requests and subsequent action. After study, specimens provided by SOSC must be handled as follows: holotypes and a representative series of nontype specimens should be deposited in the U.S. Museum of Natural History; remaining identified specimens may be deposited in other repositories on approval from SOSC curators.

Addresses and telephone numbers

Curator, Ice Core Facility
Department of Geology
State University of New York at Buffalo
Amherst, New York 14226
(716) 831-1852

Curator
Antarctic Marine Geology Research Facility and Core Library
Florida State University
Tallahassee, Florida 32306
(904) 644-2407

Director
Smithsonian Oceanographic Sorting Center
Smithsonian Institution
Washington, D.C. 20560
(202) 381-5643

Project Coordinator
Dry Valley Drilling Project
Department of Geology
Northern Illinois University
DeKalb, Illinois 60115
(815) 753-0284

Chief Scientist
Division of Polar Programs
National Science Foundation
Washington, D.C. 20550
(202) 632-4162